

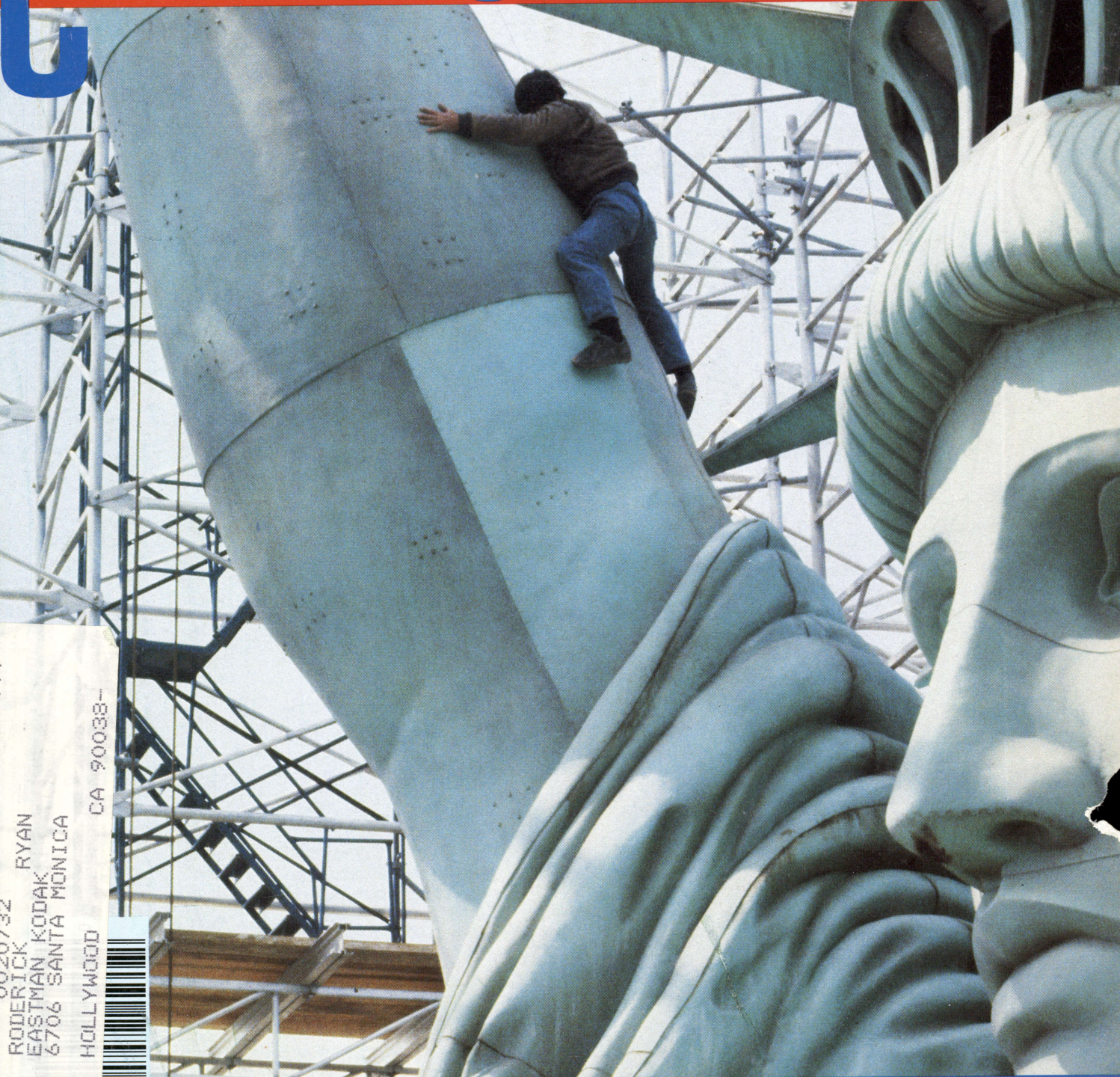
November 1985

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Remo, Laszlo, Liberty: High Adventure

American Cinematographer



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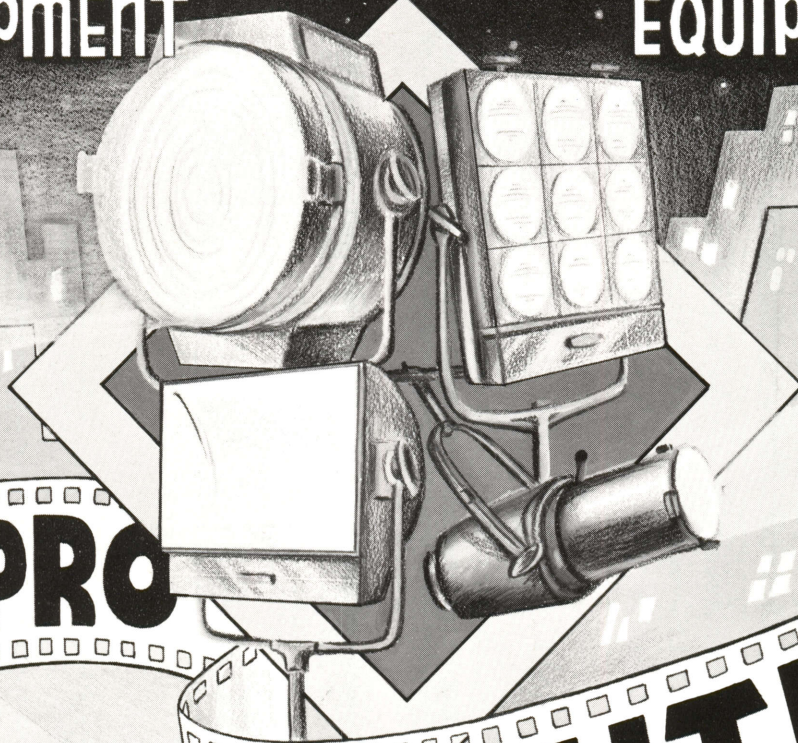


11

The Monkey's Paw, a Hollywood Jinx
Mark Twain, Classic in Clay

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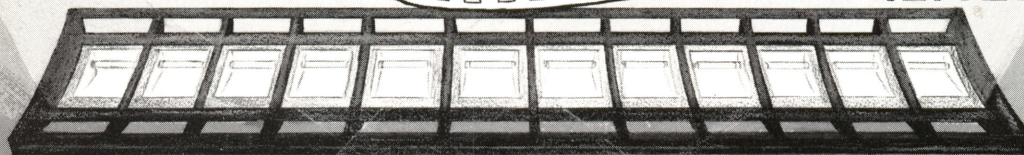


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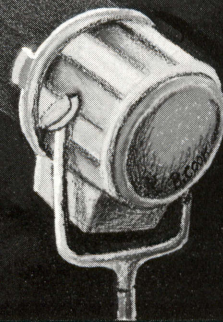
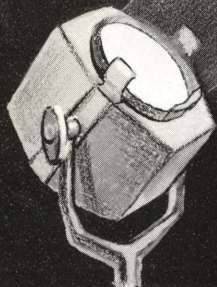
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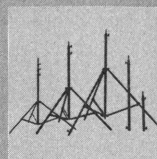
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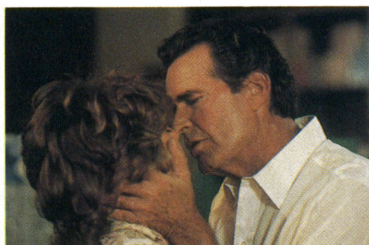
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On Our Cover:
Remo Williams (Fred Ward) slides down the arm of Liberty as villains in the scaffolding try to do him harm. Photo by Joyce Rudolph from *Remo Williams: the Adventure Begins*, an Orion release.

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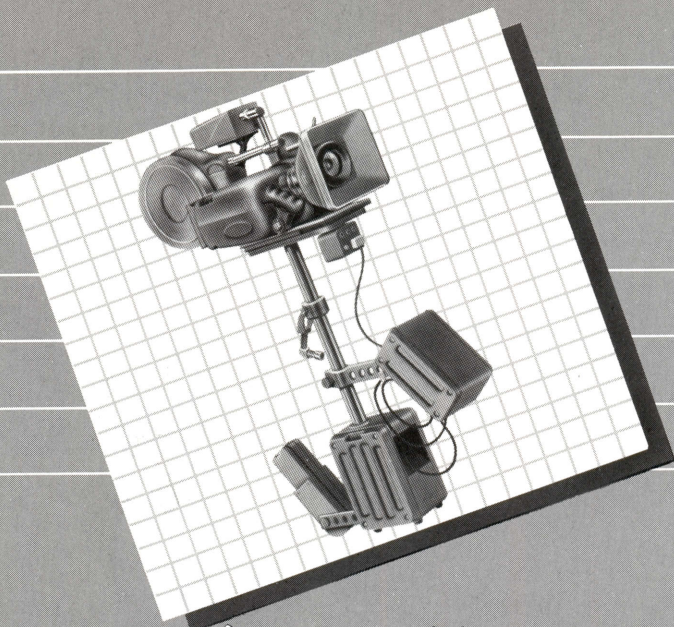
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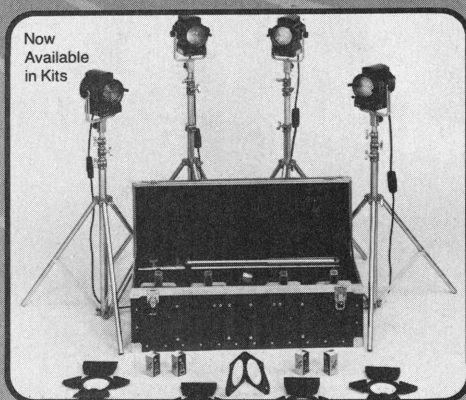
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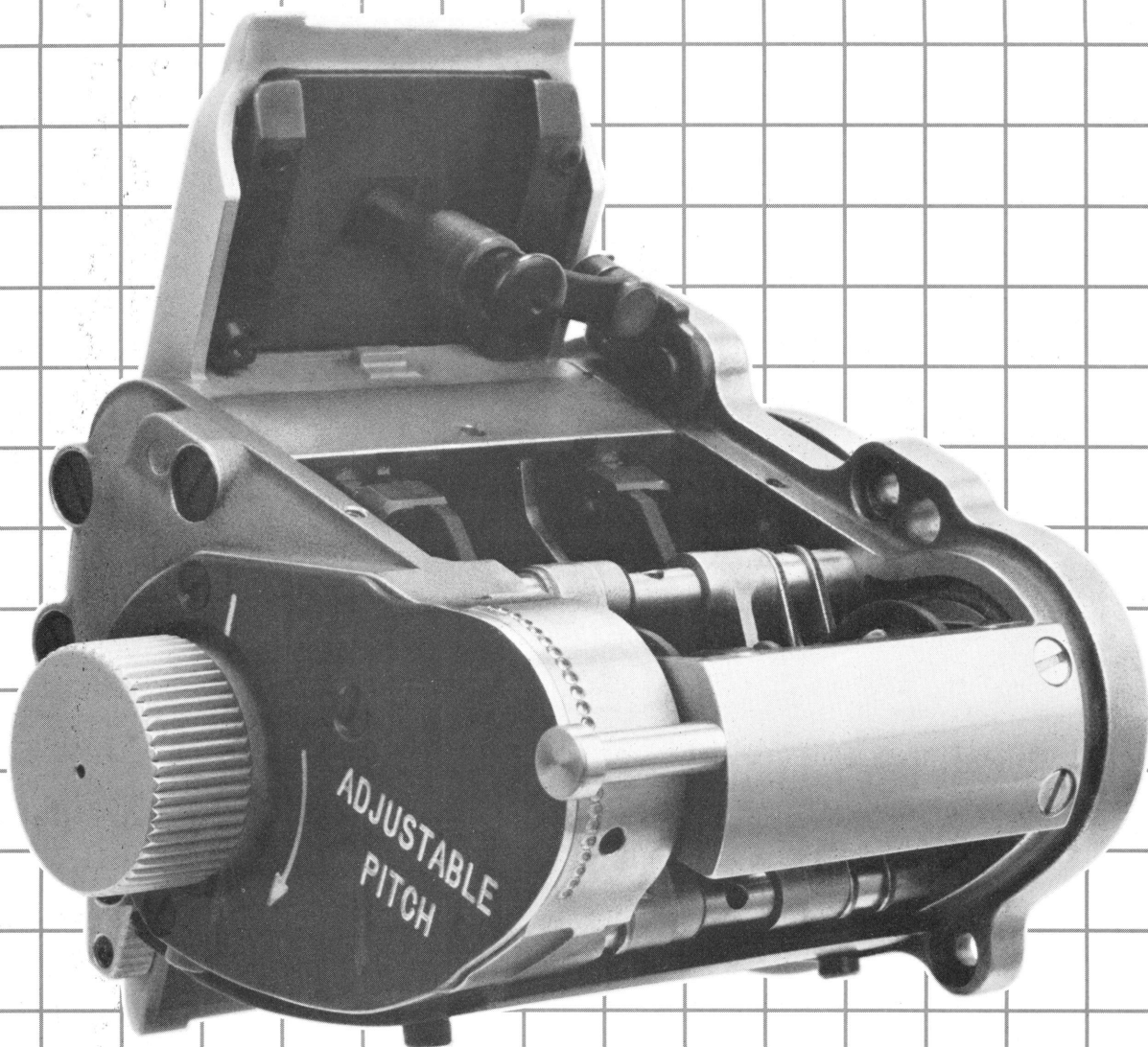
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Look at the photo above. To the right of the words **ADJUSTABLE PITCH** you can see a row of little circular detents in the curved white metal surface.

You can also see the small white knob on its shaft in front of the row of detents. That's the pitch adjustment control knob.

There are twenty-four detents in that row. Twenty-four pitch settings. Mov-

ing the knob from Position 1 to Position 24 alters the camera movement's pull-down pitch by .1mm. One tenth of a millimeter. Moving the knob from Position 1 to Position 2 alters it by .0043mm. Forty-three ten-thousandths.

The SMPTE perforation pitch spec. for camera raw-stock is 4.740mm. The tolerance is plus-or-minus .010mm. One hundredth of a millimeter.

New from Clairmont: adjustable pitch on all our 35BLs

The consistently quietest
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“The First Assistant is the loneliest man on the set when they say: *The camera's noisy—do something about it,*” says Dick Barth.

First Assistant since 1957

Mr. Barth is probably the most experienced First Assistant Cameraman alive. He retired last year, after working in Hollywood as a First Assistant since 1957.

Even BNCs

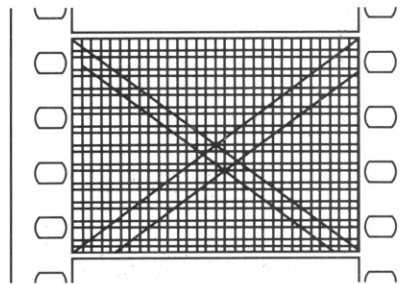
“We would sometimes get noise problems with every camera,” says Mr. Barth. “Even the Mitchells, inside their big blimps. Noise can be an extremely mysterious thing.”

Used adjustable pitch all the time

“As soon as adjustable pitch was introduced, I used it all the time from then on. With every reload and after every print take.”

Rawstock pitch changes

“With certain makes of film, the pitch changed constantly—even in the middle of a roll,” says Mr. Barth. “Every make of film has



DOUBLE EXPOSURE
STEADINESS TEST

pitch variations now and then, especially as the temperature changes. And every load has its quietest pitch spot.”

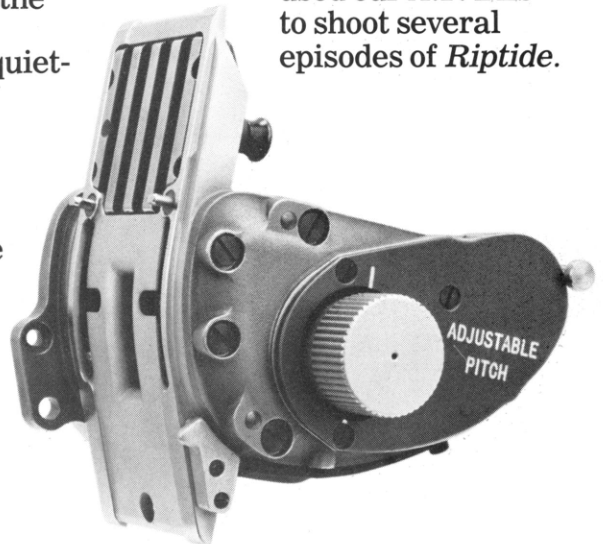
Our steadiness test: same as the factory's

We've added adjustable pitch to all our 35BLs. They were rock-steady before; they still are. Our last step is to run

a double-exposure steadiness test—identical to the one used at the Arriflex factory.

Are people using it yet?

Yes. D.P. Ed Martin and 1st Asst Bob Gersicoff have shot TV commercials with A.P. Clairmont BLs. So have D.P. Larry Boelens and 1st Asst Jim LeBlanc. D.P. Ron Vargas and 1st Asst Gary Huddleston have used our A.P. BLs to shoot several episodes of *Riptide*.



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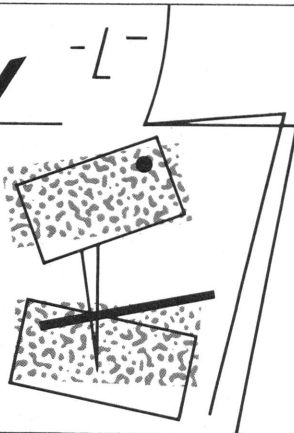
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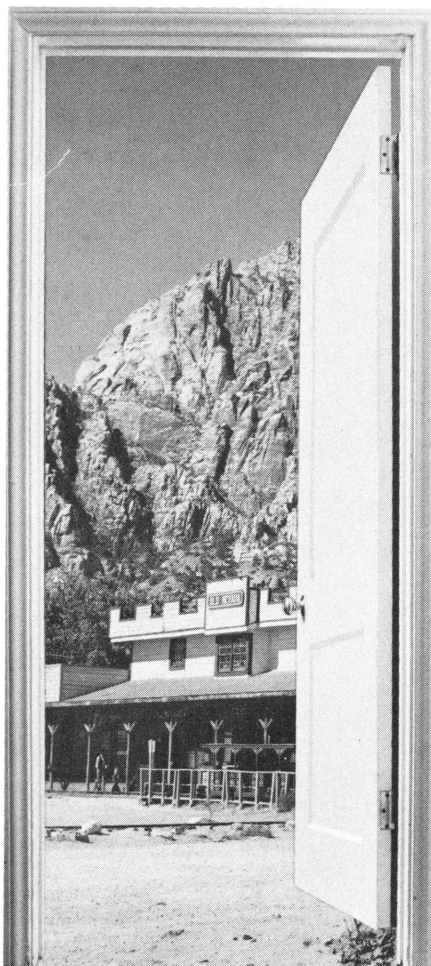
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Letters

Large Formats

More than 20 years I have been a reader of your famous magazine! And I still like it. From time to time we read something about that old "Cinerama time" and other super formats. At their time I myself was also a great fan of the super formats because of the brightness and stereophonic sound on more than two channels! Of course the Cinerama systems cannot be brought back; we now have the Imax and Omnimax, haven't we?

But yet I should like to know: What has become of all the beautiful Todd-AO 65mm cameras and the Super Panavision 70 system, etc. Why no more motion pictures are made in 65/70mm today. Here in Holland we have still a lot of 70mm theaters but no one shows a 70mm picture at this time!

So I should like to know if there are no possibilities of re-releasing a lot of these old 70mm productions. Producers shouldn't forget 70mm because I think it is still a weapon against television and video lookers!

—Johan C.M. Wolthuis
Arnhem, Holland

Some of the large format cameras are still on duty in special effects studios and are used in shooting giant screen productions for special purposes such as world fairs and science centers. Few theatrical features are made in 65/70mm because of the expense and lack of mobility. Most of the theatrical presentations in wide format have been blown up from 35mm originals.

Heroic Effort

As a member of the crew of Alex Rockwell's 1982 film, *Hero*, I read your August article with interest and some concern.

Rockwell created some memorable images, and did some fine shooting toward the end of the film. But the article appears to credit him with scenes he did not shoot.

I'm not the appropriate person to correct the record. But I find it very strange that your magazine published the story without even contacting Bob Yeomans, the film's principal cameraman.

—Jane Abbott
New York, New York



It's a Jungle out there...

Once upon a time, lighting was easy. In the days of black and white all you needed to worry about was whether you had enough light to shoot. Even in the early days of color, the lighting was either incandescent or daylight, and Kelvin was easily controlled with a few amber or blue gels.

Then suddenly, a whole new generation of efficient new lights appeared. Every location had its own brand of lighting monsters. From energy-efficient fluorescent lights in office buildings, to various breeds of discharge lamps lighting streets and shopping malls. They created a new set of problems for the cinematographer and gaffer.

For film emulsions and video the output of these powerful new "white" lights varies across the spectrum from blue-green to orange. To complicate matters more, most of them shift as they go from burn-in to burn-out and some vary as much as 600 degrees Kelvin even when brand new.

Just measuring Kelvin is no longer enough. Between the Mired Shift from amber to blue, and the Color Compensation to adjust the green, balancing the lighting in a tough location has turned into a monstrous task.

Until now . . .



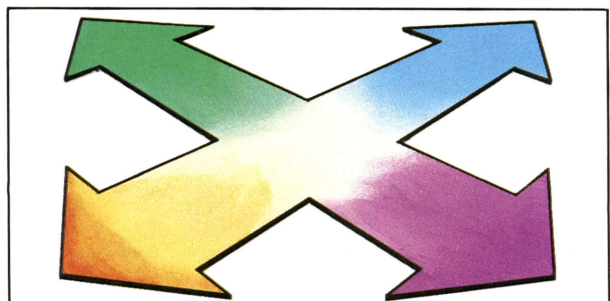
Now you can tame the

Armed with a little information, a handful of light control filters, and a good color meter, you can control virtually any light you encounter. Here, briefly, is how the Rosco system works:

Measure the Kelvin temperature (LB scale) of the light and find the blue or amber Rosco filter that gives you the Kelvin adjustment you need.

Then check the Color Compensating factor (CC scale) of the light and find the green or magenta Rosco filter that gives you the green correction you need.

You now have the combination of Rosco gels you need to balance *that* light to the standard *you choose*. In the most difficult maze of too-green, too-blue or too-orange lights, you can balance to your standard quickly, without delaying the production.



With the increased use of discharge sources, the problem of Kelvin correction has become a two-dimensional problem: lighting balancing for Kelvin on the blue-amber scale AND color correcting on the green-magenta scale. The new Rosco system handles both.

With Rosco assured quality, you can be confident of getting reliable results every time with any kind of light.



monsters ... everywhere

regardless of how far it deviated from the expected standard. Whether it's new or old, on color or off, you can quickly and easily "tame" it to your standard.

All the technical information you'll need is in Rosco's new "Lighting In The Jungle" Handbook and the Rosco "Jungle Book" swatchbook for location lighting. Both are yours free, for the asking. Be sure they're handy before your next encounter with the lighting monsters.

There are 20 meter-sized swatches in carefully graded steps of blue, amber, green and magenta in the new Rosco "Jungle Book". They let you correct any light to any standard you set. The swatchbook is free from Rosco or your rental house.



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Switzerland & England Scenes of 1985 Technical Exhibits

by **Abbott Sydney**

A.S.C. Associate Member



Montreux, Switzerland, site of conference. Below: Tore Zelli of Elemack, adjusts Cricket Dolly.

The 14th International Television Symposium and Technical Exhibition took place June 6-12, 1985, in Montreux, Switzerland, on the shores of peaceful and beautiful Lake Geneva.

The 9th International Technology Conference and Exhibition of the British Kinematograph Sound and Television Society was held the first week of July, 1985. The first one was called "Film 69", and succeeding shows were held every two years in London until 1981. Because of the growing importance of video, it was decided to change the name of this biennial event to BKSTS. This conference and exhibition is one of the two important international gatherings supported by the industry – the other being Photokina in Cologne, West Germany in alternate years.

From a modest start in 1961, the international exhibition at Montreux has achieved world status. It is the most comprehensive exhibition of its kind anywhere in the world. It offers visitors the opportunity to examine and compare in one place the equipment produced worldwide. PAL-oriented Montreux is important from the European point of view, since it attracts people from all parts of the world to Europe. To view an exhibition the scope of Montreux, one must be selective, as no person can visit every display stand

or listen to every discussion of the symposium.

A headlined event on Sunday, June 9, was a colloquium called "The Viewer's Choice", coordinated by J. Flaherty, vice-president and general manager of engineering and development CBS (USA) and B. Labrusse, chairman and chief executive officer, Societe Francaise de Production, France. The chairman was A. Scharf, president of the European Broadcasting Union (EBU) Germany.

Based on the emergence of private television broadcasting, the extension of cable networks and the initiation of direct satellite broadcasting in Europe, along with the growth of similar services throughout the world, viewers are now provided with a superabundance of new information and entertainment sources. This, combined with viewer operated devices, such as the VCR, the home computer, and interactive videotex, promises to have an enormous effect on viewing habits. The development of enhanced and high definition television services which offer a diverse program quality to the viewer could have a profound impact on existing broadcasting companies and on the growth of the new media.

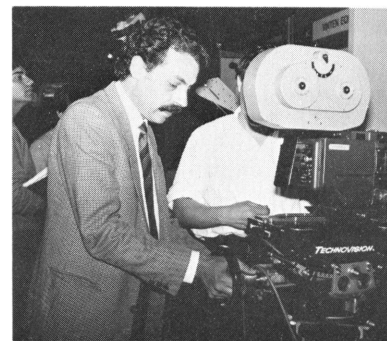
The famous lines of Samuel Taylor Coleridge come to mind, "Often do the spirits of great events stride on before the events, and in today already walks tomorrow."

To support the colloquium was a demonstration, "Living Room of the Future," wherein the new technology was shown. Imagine a room in your own home with seven screens, as displayed at the exhibition. On one were still images from a teletext service of the future, and on this receiver pages could be selected in normal manner via a remote control keypad; with added software, the ability to compute the viewer's income tax. A second screen showed the combination of the home

computer with telephone connection for such services as home banking and shopping, via a catalogue – eliminating the necessity of leaving the home and going to a store. On wall three, the living room of the future would almost certainly include a television system employing higher resolution cinema – like wide-screen picture aspect ratio and multi-channel, high quality sound, using 1125 scanning lines (if adopted as the standard), with a picture aspect ratio of 5 to 3, similar to motion pictures.

The fourth screen would have text and graphics transmitted via the Didon data transmission system. On the 5th screen the basic structure of the present PAL 625 line system would be maintained. On screen six the viewer could create his own programs using a compact hand-held camcorder. And on the seventh screen, the advanced state-of-the-art home entertainment system, the viewer would select programs from video cassettes, a cable TV tuner, or from a video disc system interactively connected to a personal computer.

There were more than 200 exhibitors from 18 countries, sharing 10,000 square meters in one building of four levels. At least 25,000 visitors attended the exhibition in five days.



Among the exhibitors were some quite familiar to readers of *American Cinematographer*. Anton-Bauer, exhibiting at Montreux for the first time, with Anton Wilson in charge, showed

continued



MAKING THE TOUGH SHOT EASY

Director of Photography, David Fessenden, on shooting a Volkswagen spot with BIRNS & SAWYER Equipment: "We were able to get some spectacular footage with the Century Periscope from BIRNS & SAWYER. Dashboard shots without tearing the car apart — simply by dropping through the sunroof. Window shots without camera reflections — by keeping the camera above the window. And of course low angle running and beauty shots were a piece of cake. Put that with their Arri SR-II, Video Assist, and Cooke lenses, and you can't miss."

Producer, Bruce Reid, of Producer's Video, Baltimore: "When we asked Birns & Sawyer if they had a Century Periscope, they said, 'No, but if you need it, we'll buy you one.' The guys there are really interested in working with you, and keeping their inventory supplied with the latest accessories that make our job in the field easier."



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fast charge "snap-on" batteries, along with a new Ultralight system of extremely compact, lightweight lights. Ultralights become fill, spot, or flood lights, according to the selection of quick-change bulbs, filters, and focus adapters.

Angenieux showed a complete range of studio, ENG, EFP, and OB lenses. They introduced new lenses - the 24 x 10 for 2/3" studio cameras, the 18 x 12.5 for 1" cameras and 14 x 18 wide-angle light-weight ENG lens.

Egripment of Holland, manufacturers of compact dollies, displayed their new Unit 85, a super light-weight crab dolly with stable camera arm. Their focus dolly, designed for focus track, folds away in a small flightcase, which becomes the platform of the dolly. Egripment focus track is a new concept of tracking, made of light polymer plastic extruded to designed shape, which is joined by durable rubber, forming the conventional sleepers and track. Focus track folds up and is easily carried in a soft case.

Sachtler introduced the "hot pod" news tripod for ENG and recording cameras.

Nagra-Ampex UPR 5 portable video recorder, Nagra T-Audio Time Code, and two-channel studio tape recorder with its built-in synchronizer were featured. Outside the main building, on the shores of the lake, Nagra had its own portable building. Inside, crews were editing tape which was shot with the TC locked UPR-5 and the IV-S TC on locations around the exhibition halls. During the entire process they were working in "double system." The sound never touches a video tape; even the final product is in "double system" playback.

I had the opportunity to talk with Stefan Kudelski, who revolutionized the talking motion pictures with his Nagra tape recorder. The setting was just outside the Nagra portable building on the shore of Lake Geneva, with the snow-capped Alps in the background. Asking his thoughts about the future, he said, "The future will have many new technologies with more emphasis on stereo. Sound will be the important ingredient, as when we hear sound our minds conjure the picture and the action." Kudelski likes video because it permits young people to learn easily.

continued

THE SHADOWS KNOW

The problems with video assist have always been as plain as black and white. If you wanted to see into shadows, everything else went white. Everything. If you wanted to see highlights, all the shadows you saw were black. Really black. Properly exposed highlights and detailed shadows, simply didn't mix. Video assists were, after all, little more than modified surveillance cameras.

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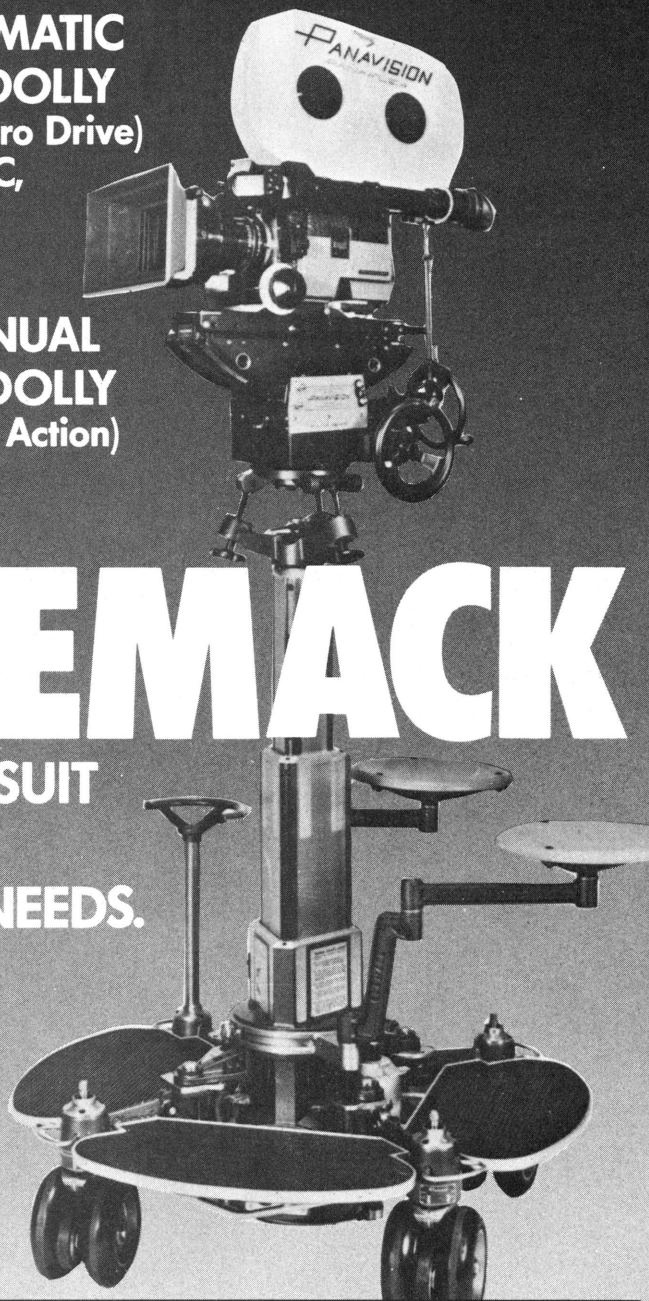


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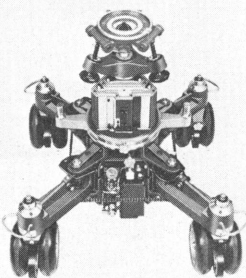
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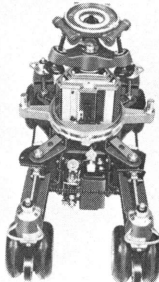
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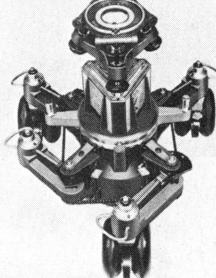
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For documentaries, the film camera is still needed, as video cameras cannot endure the rigors of extreme heat or cold – or jungle settings, etc. The small film camera is much more versatile. As one company cannot do everything, Mr. Kudelski would like to team up with other companies for progress through joint efforts.

Steenbeck, well known in the film editing field, showed a new ST 201V Video-Recorder for video post production.

O'Connor Engineering from Costa Mesa, California, introduced a new model 100 HD heavy duty fluid head for studio cameras.

RCA introduced the CCD-IS "sport" model of its solid state CCD-1 ENG Camera, featuring a 1/500 second shutter, which permits slow motion/stop action video playback on any standard VTR equipped with a slow-motion playback capability. The CCD's lack of lag and comet-tailing and absence of image burn provide exceptional dynamic resolution which combines with uniform registration and resolution in the cameras to give outstanding picture quality.

As the conference ended, I was left with frustrated feelings as to where the television broadcasting industry is going. At present, there is no world standardization. Is it political jealousy that permits the French, with their Seacam System, as well as USSR and other East Bloc nations, to be totally different from England, Germany, and the rest of Europe with PAL System, the USA with NTSC, and Japan pushing High Definition 1125 lines? There is some hope that in the near future this may come about. Until then I will continue to go to the cinema theater and be entertained with large screens and good sound – viewing the productions as the director and the cinematographer made them.

Film and video people from all over the world came together in London later on for the purpose of hearing about the latest technical developments and examining the newest equipment.

Later, in London

The BKSTS – 85 started on Saturday, June 29, 1985 at 9 a.m., with an all-day symposium called "Scene Today." This year's topic was "Decisions Decisions," which was held at the meeting hall of the Whitbread

continued

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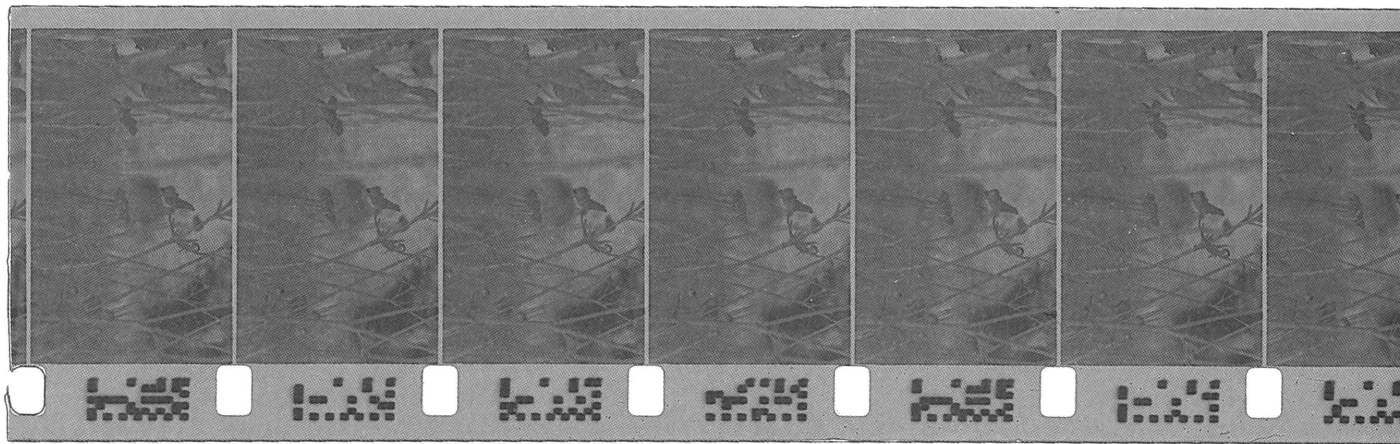
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BROADCAST

Aaton and Panavision ...on Film Data Track

Negative shot by Nic Knowland (London) on Aaton XTR

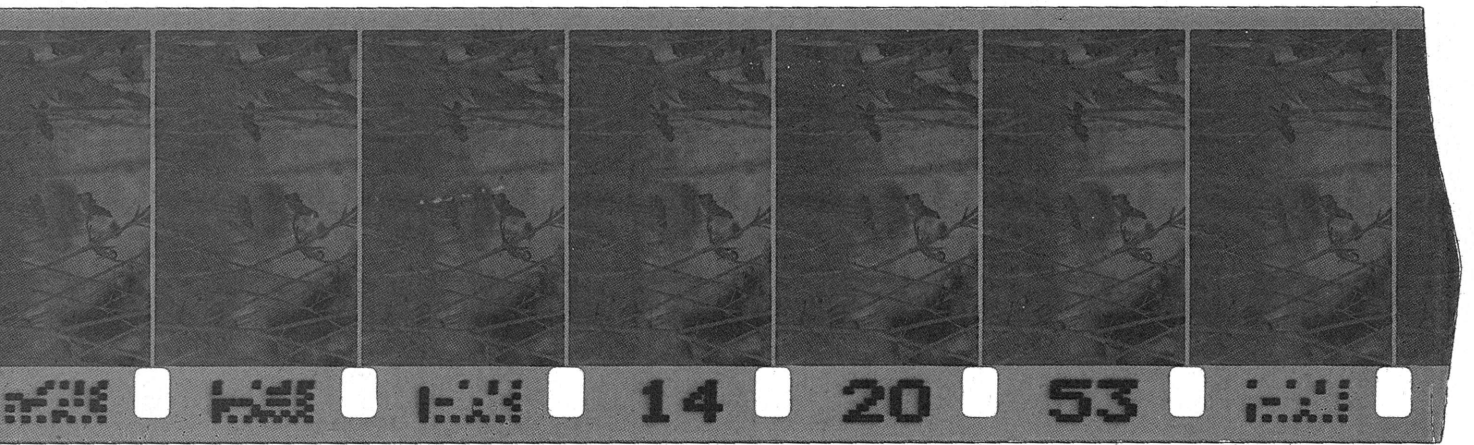


The first thing we should say is that this is here machine or I means system is the best thing since sliced peanuts and if you don't use it you're com

pletely bonkers. As a matter of fact the most intelligent and futuristic people always choose this particular kind of mousetrap 'cause it catch

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Between the perfs

Film Data Track code flag is composed of seven **thick optical bars**, divided into 13 columns which are laid down between the perforations (16 mm). There is a specific flag at the beginning and end of each take, and it can be identified by the naked eye. (Super 16 users will be happy to know that the **Super 16 area is untouched** by Fdt).

Recommended Practice

With the feed-back from two years of field use, the system has matured : thus the SMPTE Journal published in August 85 a Recommended Practice (RP 135, p. 872) for a paging system **adapted to the specific needs of the film industry**. Fdt fully meets these specifications.

Validation every frame

Fdt naturally incorporates the 64-bit SMPTE allocation for user bits. In order to increase the reliability of the entire system, and to ensure optimum protection of the 64-bit signal, a **check redundancy code** validates the 91 bit (7×13) overall signal at every frame.

Availability

This system is available at the present time in all **Aaton XTR 16 mm** cameras. In the very near future it will also be available in **Panaflex** cameras.

Video transfer

With Fdt, the original **negative can be transferred automatically** to video work prints,* since the Fdt code is simply a particular expression of the SMPTE code used in video. This allows for computer assisted editing on such tables as the "Montage". Code compatibility means that both synking of the rushes and negative cutting can be carried out entirely automatically.
*(or Datacode magnetically coated film workprints)

Versatility

For ease of archive access without decoding equipment, for back-up during editing, or for those who simply prefer editing on standard tables, the well known Clear Aaton figures have been retained. They provide a **complete time address once per second in clear figures** that can be read by the naked eye.

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Brewery in downtown London. It was a symposium that examined the creative, technical and financial decisions which will influence the success and future of our industry. Burton Stone (President of Deluxe Laboratories, Inc.), an ASC Associate Member, was the first speaker, giving a brisk talk on the decisions of production and distribution of the film industry, pointing out that motion picture production in 1985 is up over the previous years. Eighty percent of our prime TV shows are on 35mm negative, as well as most of the commercials. The 8mm market is practically gone, and 16mm is decreasing, being replaced by video tape. The strong U.S. dollar is affecting the market, with movie production costing less in foreign studios.

Throughout the rest of the day we were treated to a most distinguished group of speakers, covering a variety of subjects on television, commercials, cable/satellite, and closing with a witty and awakening talk by the producer/director, Michael Winner, who just finished the latest in a Charles Bronson series, called *Death Wish*.

The exhibition officially opened on Sunday, June 30, and the conference sessions on Monday, July 1. Promptly at 10:30 a.m., July 1, Nick Simpson, President of BKSTS, gave his opening address, welcoming all of us. He was followed by Milton Forman, ASC Associate, who gave a stimulating talk on film production, planning, and technology - telling us that in 1974 he predicted the decline of film production because of tape. Now 11 years later in 1985 we are seeing an increase in film production. Film is far from being replaced by tape, he says.

Roger Huybrechts and Erwin Steeman delivered a paper on "A New Generation of Agfa Gevaert Colour Negative Films. They were followed by a talk and demonstration, "An Improved 16mm Eastman Colour High Speed Negative Film 7292," given by Steven Powell and Frank Reinking of Eastman Kodak, and demonstrated with a film entitled, "Faster Than Sound".

Arri (Great Britain) supplied two 16SR cameras for this project. One was a 16SR semi-automatic, complete with a Zeiss set of prime lenses. The other was a 16SR High Speed with Zeiss 10-100 Zoom, Canon 300mm telephoto, and Century Precision Extreme Wide Angle 1.9mm. The 16SR

High Speed, capable of operating at 150 fps, was a particularly important choice in view of the Concorde shots at New York Kennedy Airport. Also, the 16SR High Speed used in a special underwater housing produced some spectacular footage of sharks and moray eels feeding. It was one of the better demonstration films.

"A Creative Look at Lenses" was the title of Joe Dunton's talk. He described the creative effects of using anamorphic lenses. Along with his talk, we were treated to clips of recent pictures that have used anamorphic lenses by J.D.C. (Joe Dunton Cameras), *The Bounty*, *Dune*, and soon to be released *Santa Claus*.

I did catch Garrett Brown's talk on Skycam, the latest system that allows three-dimensional transport and spatial control of motion picture and video cameras.

Harry Teitelbaum spoke on "The Micro-Processor - A Tool for the Laboratory." Creation of the micro-processor integrated circuit has brought forth low cost, high capacity industrial quality microcomputers. As a result, the motion picture processing laboratories are now in a position to automate data acquisition, processing and reporting of information. This is applicable to all normal accounting and production control functions, as well as all phases of negative pre-printing preparation, film printing and quality control.

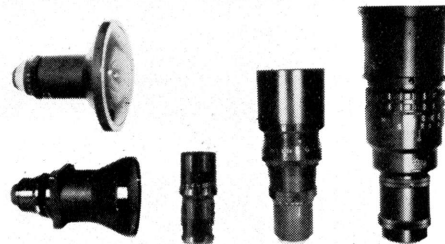
Lee Enterprises, Lee Electric, Lee Filters are a group of companies definitely on the move upward within our industry. Joe Dunton Cameras, together with Lee Filters, formed Media Technology International last year. They recently bought The Mitchell Camera Company. Lee Enterprises has taken over Colortran. The Lee Brothers, John and Benny, own Shepperton Studios, Wembley Studios, and The Lee Lighting Company, which manufactures and rents lighting equipment to the industry. John and Benny and their Lee Group of Companies are making a continuing contribution throughout all elements of industry.

As BKSTS 85 came to a close, we were informed that in two years BKSTS 87 will be held at the Brighton Metropole Exhibition and Conference Center, Brighton, England, at the seashore, June 26-June 30, 1987.



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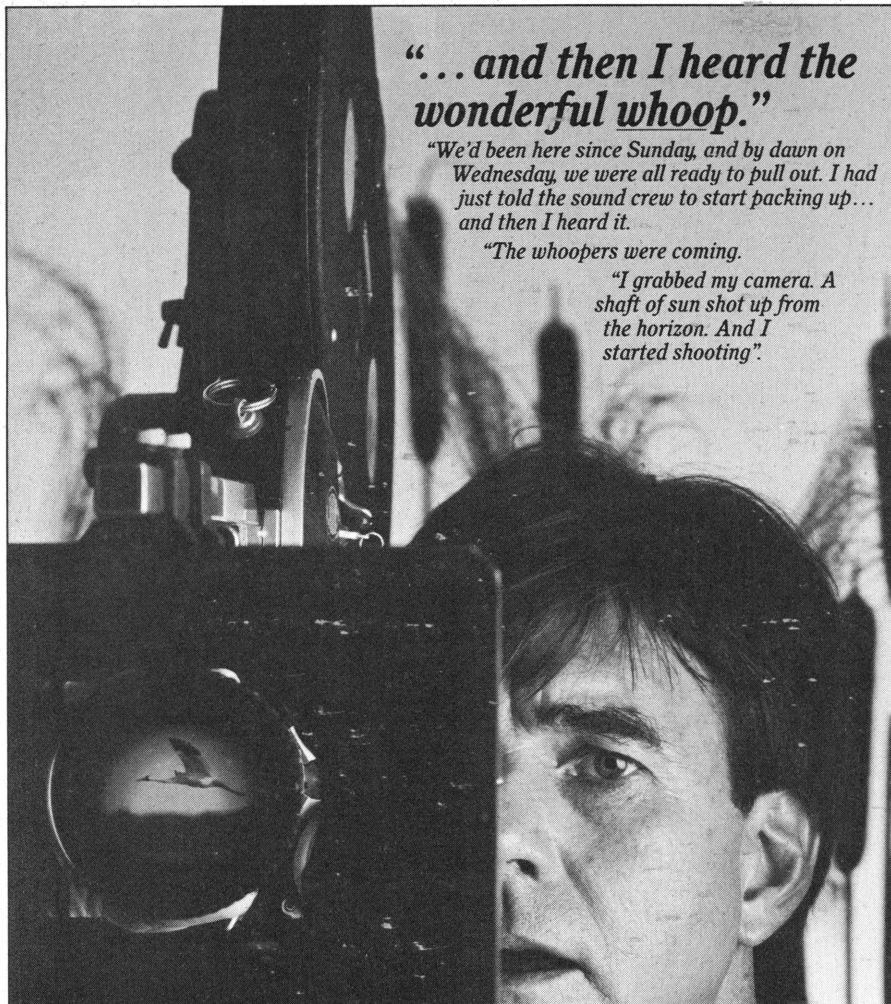


"...and then I heard the wonderful whoop."

"We'd been here since Sunday, and by dawn on Wednesday, we were all ready to pull out. I had just told the sound crew to start packing up... and then I heard it."

"The whoopers were coming."

"I grabbed my camera. A shaft of sun shot up from the horizon. And I started shooting."



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The Bookshelf

by George L. George

Britain's protective legislation shielding its domestic film industry is traced in **Cinema and State** by Margaret Dickinson and Sarah Street. Hollywood's dominance of the British film market created an endemic crisis that government intervention generally failed to remedy, as this well-researched study discloses (*U. of Illinois, Champaign, IL, \$33.95/16.95*).

In UMI's "Studies in Cinema" series, Robert Stam's probe of the dialectics of cinema, **Reflexivity in Film and Literature**, contrasts the movies' filmic nature with their literary aspects. In **The Filmology Movement and Film Study in France**, Edward Lowry examines the development of contemporary film theory. Brian Lewis, in **Jean Mitry and the Aesthetics of the Cinema**, analyzes the French scholar's seminal theory of film aesthetics, notably the nature of montage and film's linguistic structures (*UMI Research Press, 300 N. Zeeb Rd., Ann Arbor, MI, \$39.95 ea.*).

Clear and precise definitions of over 3000 words and phrases currently used in the motion picture and video industries appear in **The Complete Dictionary of Television and Film**. Compiled by Lynne Naylor Ensign and Robyn Eileen Knapp, this is an up-to-date reference work, useful to professionals and students alike (*Stein & Day, NYC, \$35*).

Films produced by developing countries between 1976 and 1983 are listed in Helen W. Cyr's annotated index, **A Filmography of the Third World**. Some 1300 movies in 16mm, originating in over 80 African, Asian and Latin-American nations are included, covering a remarkable variety of topics of a generally documentary nature (*Scarecrow, Metuchen, NJ, \$20*).

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Photos by John Shannon

Murphy's Romance

on Location in Arizona

by Larry Harnisch

"I believe myself to be a romantic," says William Fraker, ASC. "I think pictures and stars should be beautiful" – and beauty is Fraker's approach to *Murphy's Romance*, a romantic comedy directed by Martin Ritt, featuring James Garner and Sally Field.

The beauty was well-prepared because the entire company spent its first two weeks on location in rehearsal without shooting a single frame of film. "Something major in the picture, dramatically and visually, came out of the rehearsals every day," Fraker said.

Laura Ziskin, producer
 Martin Ritt, director
 William A. Fraker, ASC, director of photography

"It was a major experience to work with Ritt," he added, describing Ritt as one of the last of the "actors' directors."

Based on a novella by Max Schott, *Murphy's Romance* was written by the husband and wife team of Irving Ravetch and Harriet Frank Jr. They have collaborated with Ritt on such films as *The Sound and the Fury*, *Hud*, *The Long Hot Summer* and *Norma Rae*. The movie was made by Fogwood Films, which is headed by Sally Field, the film's executive producer, and Laura

Ziskin, producer.

In *Murphy's Romance*, Field plays Emma Moriarity, a recently divorced woman who moves to an Arizona horse ranch with her 12-year-old son (Corey Haim). She gradually falls in love with the eccentric local pharmacist (Garner), whom she chooses over her ex-husband (Brian Kerwin).

The film was shot in the area of Florence, Ariz., from February through April 1985. Several sets were built for the film, including a dilapidated ranch and Murphy's drug store.

"The film is a romantic comedy with serious overtones," Fraker said. "It's relevant to today's society because women are out on their own. Emma must fight her selfish instincts to think of her son and to find a life for herself in a society that is not prone to accept women on their own – and she does it."

Fraker said he became involved with the film after the cancellation of *Road Show*, which he and Ritt had been working on. "I've always wanted to work with Martin," Fraker said. "He's very loyal to his cameramen, like James Wong Howe and John Alonzo."

Although his father was a noted Hollywood studio photographer of the 1920s, Fraker said he actually learned photography from his grandmother, who also taught his father. It was she who made sure that Fraker, just back from World War II, took film classes at the University of Southern California. He added that the family is now in its fourth generation of photographers as his son, William Jr., served as second assistant on *Murphy's Romance*.

Fraker's career as a director of photography began with the 1967 film *Games*, after a stint with such television series as *Outer Limits* and *Stoney Burke*.

Fraker said working with Ritt was a unique experience, in part because of the extensive rehearsals. "It's the first time I've been brought in on all the rehearsals," Fraker said. "Few directors

bring in everyone for dramatic rehearsals because most of them have an ego problem. They don't know where to go."

For the rehearsals, the cast and crew read through the script every day. Ritt set up each scene by describing it, and the descriptions helped Fraker visualize the shots.

"It gives you an idea of how to light the scene when he says 'OK, It's evening and the light is coming in through the window,'" Fraker said.

For Ritt, rehearsals are important because they allow the actors to work on a scene almost until they reach their peak, a point that Ritt said must occur on camera. Occasionally, he will stop rehearsing a scene because he is afraid the actor will peak before the scene is shot.

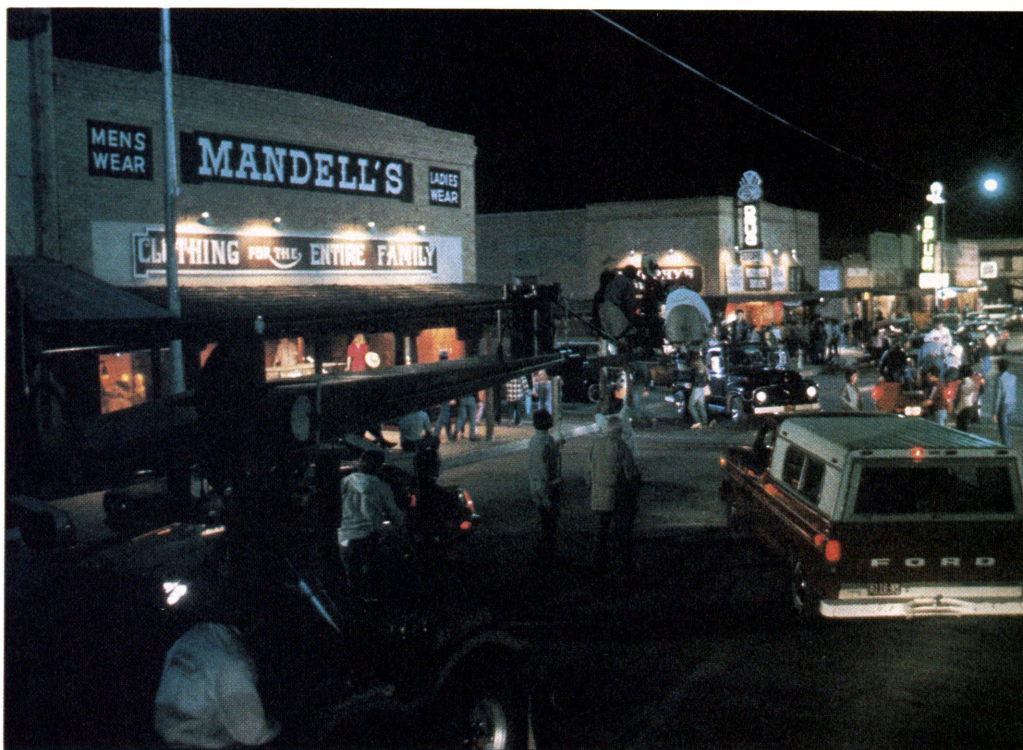
Ritt said that because of the advance preparation, he doesn't shoot many takes. His normal ratio of the amount of film shot to what is actually used is about 3:1. With *Norma Rae*, the ratio was 2.5:1.

"The film isn't that complicated technically," Ritt added. "It's a human comedy, so the actors have to be in sync. I didn't shoot a lot of takes and printed most scenes quite early. It was well-rehearsed and well-prepared."

"All of us go into a production with preconceived ideas and we don't normally get a chance to use them," Fraker said. "But because of the rehearsals, we've already talked about the lighting, the props, everything in that direction. The movie is off and launched before you reach the set."

Another important twist to Ritt's method, Fraker said, was that once the actors had gotten into character, Ritt helped them maintain conceptions of their parts by not allowing them to see the dailies.

Although Ritt said he wasn't sure about being an actor's director, he conceded that he knows a lot about acting. As for



Above: *Shooting night-for-night on location. Center:* David Diano (left) Fraker and Ritt get birds-eye view. **Below:** *Daylight shooting at the ranch. Opposite page:* Field and Garner in Murphy's drug store.



Magic hour photography lends beauty to this ranch scene. Right top: Main characters at the movies. Center: Murphy cuts in. Below: Emma cuts out.



not allowing actors to view dailies, Ritt said he restricts attendance because most actors don't know how to look at them.

"Especially women," he said. "Women get worried about how they look, and a film is never about how a woman looks—at least not the kind of film I'd be making." He added that watching dailies makes the actors nervous because the film is in a very raw state.

"A film is a living thing and it changes day by day," Ritt said. "If someone sees something in the dailies they don't like, it may affect the next day's shooting. Generally, it's not a good idea, but if the actor wants to see something, I will allow it if there's a valid reason. But I'm making the picture and they're acting in it."

To Fraker, the advance preparation was an asset because it helped give him an idea of what Ritt wanted. "I believe a cinematographer's main job is to really understand the director," he said. "It's a marriage that must take place and you must listen to what he says." Fraker said that too often, only part of the director's

ideas get across because people start making plans without listening to everything the director says.

Ritt agrees absolutely. "I've never had any difficulty because by the time I've decided to do a picture I have a strong idea at every level," he said. "Being an articulate guy, I can get what I want across. Therefore, the feel of the picture must start with the director. He must know why he wants to make the picture. I may not always be right, but even Babe Ruth didn't always hit a home run."

Why did he want to make *Murphy's Romance*?

"It's about something I like in human experience," he said. "It's picking up the tab for your behavior. It's important for my generation and for the younger generation. It's paying your dues."

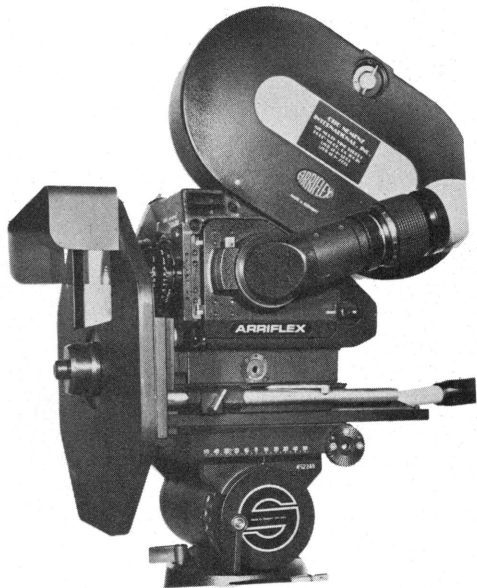
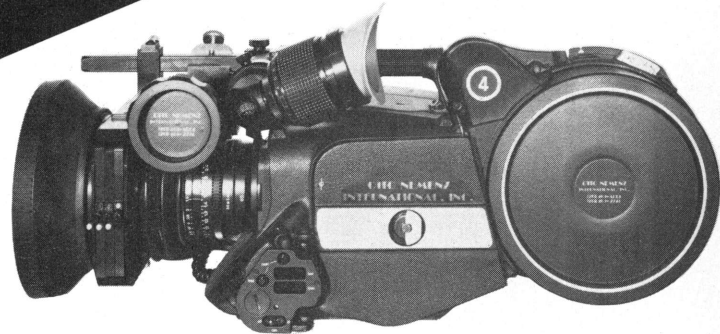
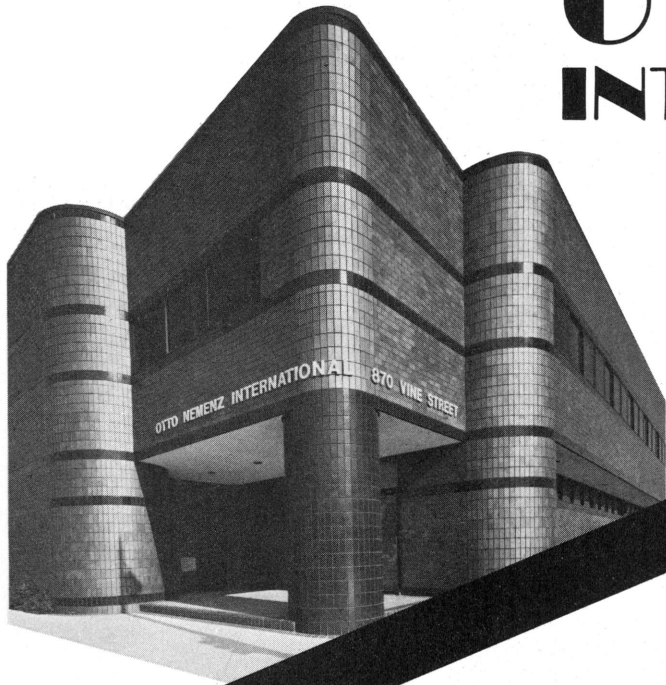
In addition to listening to the director, Fraker said a cinematographer should make every film look unique. "I don't agree with a cinematographer putting his stamp on a picture," he said. "Each picture should look different because the look of a picture is inherent in the material. So you look for a look and the tough part is achieving that look."

He added that the look of a film is not written in granite because it is dependent on the location, the sets and the actors. "I can't tell you what the look will be before the film is put together," Fraker said. "You must constantly change because the director will say 'this is sunset, not dark,' so what you thought you would do must change, too."

What sort of look did Ritt intend?

Murphy's Romance is a romantic film," Ritt said. "It's a love story and it's an optimistic film. It's a comedy in the classic sense and in the actual sense, which means it has a happy ending. I wanted the picture to look good and rich." One way he achieved this was to use dusk sequences. "There's a lot of magic-hour shooting, with a series of scenes set in the late afternoon in which characters are invited to

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dinner or go for rides in the country. It's difficult to shoot because there isn't much time, so it must be well-prepared. All of it is very handsome to look at."

The execution of the look is another of the cinematographer's jobs. How does Fraker do it? He explains it very diplomatically.

"If you're doing a picture with 16 and 18-year-old kids, you can put the lamps wherever you want," he said. "But because of the nature of Hollywood, the more prominent the star, the easier a picture is to sell." To Fraker, selling a picture means using stars and making the stars beautiful.

"I think pictures and stars should be beautiful," he said. "I want a 40-foot face to be a beauty. They can look calm or harrassed and still look realistically terrific. I don't mean that you should have Esther Williams coming out of the water with every hair in place, although I love that, too."

How did Fraker make the film beautiful? He began by using Panavision equipment. *Murphy's Romance* is filmed in a 1.85-1 aspect ratio, using prime lenses except for an occasional zoom in one two-shot. "I try to stay away from zoom lenses," Fraker said. "With prime lenses you get better glass."

Fraker used Kodak 5247 (ASA 100) and 5294 (ASA 400) with normal processing by MGM. To enhance the look, Fraker used a combination of filters including a half Harrison fog, a half Harrison coral and a Mitchell B diffusion disk. Fraker said he had great success with this combination of filters, having used it for *Heaven Can Wait*.

In addition to his admiration for Ritt, Fraker also praised Field, whom he described as being extremely cooperative. For example, Field often served as her own stand-in. "She's so cute and marvelous," Fraker said. "If we want her to work as a standin, she will.

That way, we can get the exact look with the lamps that we want. We call on her quite a bit."

But it isn't always easy for Fraker to simply go for beauty.

"You must be realistic and beautiful," he said. "So you're torn between the two and there's the pressure of having to make that decision."

Fortunately, the rehearsals made the decisions a little easier, particularly in the twilight scenes.

"I asked Marty if he'd ever shot as many dusk sequences," Fraker said. "He said no." Fraker added that they had gotten more daring with each scene because the shots had worked so well.

As an example, Fraker described a sequence in which Murphy comes in from riding his horse, which is stabled at Emma's ranch. He rides up, puts his horse in the barn, comes back out and gets into his car. Emma comes outside and invites him to stay for dinner. He gets out of the car. He opens the door for her, they go in the house and into the kitchen.

"You're going like mad," Fraker said. "There's the sun over the mountains, the horse in the barn, the kitchen. You have 20 minutes to shoot all of that and light two superstars. You try to hit 100 percent, but if you hit 85 percent you're in the ball park."

The cinematographer's task in the dusk scenes is to balance two important factors, Fraker said. "It's darkening in point of the low light and underexposing. You must realize the limitations of the film and of the lab."

The other consideration is beauty.

"You must realize how the actors look at that low light level," Fraker said. "Do the actors look beautiful?" Δ

Larry Harnish is a writer for the Arizona Star in Tucson.

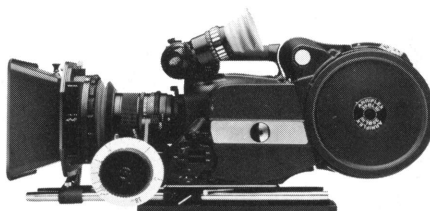
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From the Start:

THE MONKEY'S PAW



Young David O. Selznick was executive producer at RKO Radio in 1932, when he purchased film rights to a popular story and play, *The Monkey's Paw*. He had fond hopes for the property. His father, Lewis J. Selznick, had released a successful version made in England ten years before and Universal had announced the intention of remaking it as a talkie just before RKO acted.

RKO released its version on January 13, 1933—an appropriate date, for the picture seemed jinxed from the outset. It was slaughtered by the trade press—an industry paper headlined “Monkey’s Paw Worst RKO to Date.” Mainstream critics ignored it, exhibitors shunned it and it was virtually unseen by the public.

Like many a commercial failure, it was a fascinating film—a point impossible to prove now because much of the negative has vanished from the studio vault and no full prints are known to exist. It deserves reconsidering if only for the fact that it was directed by Wesley Ruggles and (“now it can be told”) an unbilled Ernest B. Schoedsack, and that no less than seven directors of photography worked on it.

That Ruggles, who produced and directed the studio’s biggest and most prestigious picture, *Cimarron* (1931), was assigned to a picture with a budget of only \$153,574.46 (RKO, at the time, started its “A” product at \$200,000) is more explicable than it would seem. Ruggles’ popularity at the studio had suffered in the year that had elapsed since William LeBaron vacated the post of chief studio executive in charge of production and found a more comfortable berth next door at Paramount. Selznick, a former Paramount executive who had replaced LeBaron at RKO, did not share LeBaron’s enthusiasm for Ruggles, either personally or as a director. Ruggles quickly made arrangements to join his old boss at Paramount. *The Monkey’s Paw* was his last assignment for RKO to complete his contract.

The picture had an “all-star cast”—Hollywood’s way of saying that it had *no* stars. The technical crew, on the other hand, was first-rate, being made up of personnel who, like Ruggles, usually were assigned to the higher budget productions.

Leo Tover, ASC, the director of photography, was certainly top drawer. He had been a cameraman since the age of 16, having started at the Norma Talmadge Company in New York in 1918. After coming to California he worked for several of the major studios, moving from Paramount to RKO shortly after the studio was established. He had already shot some of the company’s finest, most notably *Symphony of Six Million*, *State’s Attorney*, *Thirteen Women*, and *The Great Jasper*. Unfortunately, he, too was at odds with management and soon decamped for Paramount as well, *The Monkey’s Paw* being his last at RKO until many years later. At Paramount, where he remained until 1947 except for a stint with the Army Signal Corps during World War II, Tover specialized in “Lubitsch-style” romantic films. In 1947 he went to Twentieth Century-Fox to photograph the landmark psychological drama, *The Snake Pit*. During the ensuing 12 years at Fox he made more than 30 features. Later, as a free-lance, he



Opposite: Ivan Simpson, noted character actor and sculptor, as a victim of the curse of the monkey's paw.

worked for most of the major studios until a heart attack claimed him on the last day of 1965, at the age of 62.

Shooting began on Friday, August 12, with Alan Mowbray as a one-armed army sergeant spinning tall tales of his adventures to a group of Cockneys in Old Chelsea, London. Although Mowbray, a pal of John Barrymore's, had a habit of tipping secretly between takes, things seemed to be going well enough.

After one day's work, Mowbray had to be replaced due to illness. His replacement was the craggy and beloved C. Aubrey Smith, unofficial leader of the British acting and cricket-playing colony in Hollywood. The company started over on—of course!—the 13th.

One week later, Ruggles requested a camera crane to use in street scenes at Pathé, and was informed that there was none available on the lot. His request that one might be borrowed from another studio was ignored. After the rushes for that day were screened, Ruggles was taken to task by associate producer Pandro S. Berman because the dialogue was deemed “unintelligible.” Berman complained formally to Merian Cooper, executive assistant to Selznick at the time, because the day's work was ruined. Ruggles placed the blame on recording engineer Hugh McDowell Jr., who insisted that he tried to tell Ruggles the dialogue was being played too softly and that the director refused to listen to reason. Berman ended the controversy by blaming *both* men.

Ruggles again came under fire later because he okayed the hiring of a trained monkey called Napoleon to be used in special effects scenes, then decided against using the animal because it didn't appear sufficiently evil. Property chief Thomas Little found a

Left: Leo Tovar,
director of
photography of *The
Monkey's Paw*.
Right: J.O.
Taylor, process
cinematographer.



mean-tempered Javanese ape which required three handlers—much to the delight of Ruggles and the chagrin of his bosses. On the following week, the camera effects department head, Lloyd Knechtel, ASC, rehired the ape for a day for some insert shots, further arousing the ire of the men watching the daily accounting reports.

Knechtel's assistant, Vernon Walker, ASC, photographed components of the effects scenes in which the face of the ape is superimposed over various backgrounds. Linwood Dunn, ASC, chief of optical effects, composited them, dissolving the evil face of the monkey in and out of the hearth fire and, later, into chimney smoke.

The title prop was constructed on a flexible armature by Marcel Delgado, the young Mexican artist who built the monsters of *The Lost World* and *King Kong* for his "discoverer," Willis O'Brien. *Kong* was in active production at the time and O'Brien had assembled a group of remarkable artists and technicians in addition to the regular studio personnel.

The paw was brought to life, so to speak, by another of the *Kong* crew, Orville "Goldy" Goldner, who used stop-motion animation to make the paw move. The task, Goldner recalled, was "comparatively simple because the paw was animated from a fixed axis and didn't shift its weight as those dinosaurs did." (Goldner, who died last February, was one of those remarkably versatile men whose skills are evident in many early RKO films. He was a sculptor, artist, special effects technician, animator and puppeteer. Later, he headed his own documentary production company and, during World War II, was in charge of all training film production for the U.S. Navy. He was also well known as a magazine editor, educator, and author.)

Ruggles completed principal photography of the entire script as written by British author

Graham John on August 26, ahead of schedule after only (what else?) 13 working days. With a hasty farewell he moved to Paramount and a new contract.

Belatedly, the studio bosses learned, to their horror, that the final cut ran just over a half-hour! The picture could hardly be classed as a feature, yet it was too expensive to sell as a short subject. *The Monkey's Paw* went on the shelf along with several other uncompleted projects aborted by the Selznick regime.

This four-reel version, closely adapted from Louis N. Parker's one-act play version of the W. W. Jacobs short-story, opens in Chelsea. Sergeant-Major Morris (C. Aubrey Smith), invalided out of the service after losing an arm in India, has a few drinks at a pub, then departs into a howling snowstorm to the nearby cottage of his old friends, Mr. and Mrs. White (Ivan Simpson and Louise Carter). Living with the elderly couple is their grown son, Herbert (Bramwell Fletcher), who is making ready to go to his night job of tending the flywheels at a power station. Also at the house is Rose Hartigan (Betty Lawford), Herbert's fiancée. Everyone settles down before the fireplace to hear of Morris' latest exploits in India. He tells them of the *fakirs*, saying he has seen great things done by the "dirty holy men of the dark places" and that "the dirtier they are the more startling is their magic." He shows them the mummified paw of a monkey, but refuses to let anybody touch it because "it is deadly." He says, "An old Indian *fakir* with matted 'air and 'arf naked put the spell on it. Fair gave you the creeps, 'e did, rockin' and mumblin' to 'imself outside 'is 'ut in Afghanistan."

A narrated flashback shows the fakir (Nick Shaid), limned in flickering light from an oil-filled human skull. Nearby is perceived the grinning face of a dead monkey. Nura (Nena Quartero), a young temple

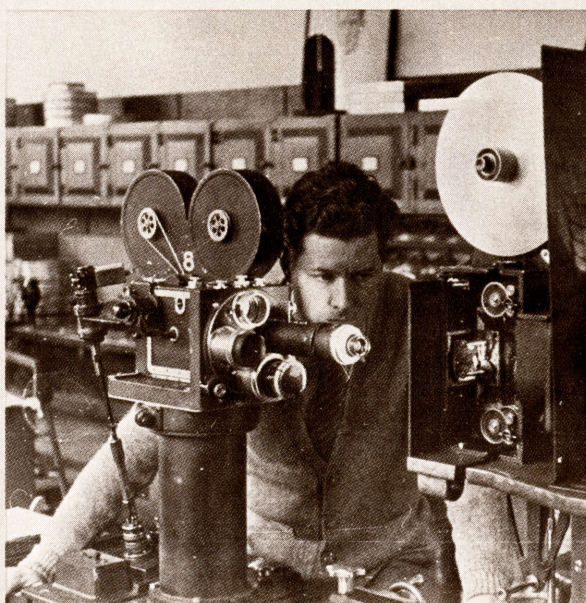


Left: *Vernon L. Walker, special effects cinematographer. Lloyd Knechtel, special effects. Below: Linwood Dunn with the primitive optical printer used in making composites for The Monkey's Paw.*

dancer, asks him to put a spell on the man she loves, but is told to go home and await the workings of fate. Accused of being a fraud, he takes a monkey's paw from a boiling cauldron and puts a spell on it. Morris explains, "'E made it so that three people, if they 'eld the paw in their right 'ands and wished aloud, could each 'ave three wishes, and they'd all be granted. They'd 'appen so natural that you might take them just for coincidence. But 'ere was the catch: although the wishes were granted, those three people would all 'ave cause to wish they 'adn't been.'" The native girl made three wishes, and the third was for death.

The Sergeant-Major also made three wishes after he was given the paw. Touching the empty sleeve, he says all three were granted—to his regret. White asks for the loan of the paw, thinking to wish for the £200 Rose and Herbert need to set up housekeeping. Morris throws the paw into the fire. White rescues it, but Morris takes it back and puts it into his overcoat pocket. Later, as Morris is leaving, White filches the paw. After Mrs. White has gone to bed, her husband slips down to the sitting room, has a drink, and prepares to test the paw's alleged power. Mrs. White comes down before he can wish, but he jokingly says he will give up the paw after making just one wish. Quickly, he says, "I wish for 200 pounds." The house is rocked by a great gust of wind and the paw clenches into a fist, then opens its fingers. At this moment, Herbert laughingly tells another worker about the paw. Meanwhile, White sees the grinning face of a monkey in the fireplace. He nervously drops the paw and is unable to find it. White falls into his chair, exhausted, and the paw reappears mysteriously on the mantel.

At breakfast, the Whites remain unnerved by the events of the night and wonder secretly if the £200 will appear. The postman brings a letter, but it



is only an insurance premium notice. Then a lawyer (Herbert Bunston) arrives. He explains that Herbert has been killed, caught by a flywheel while telling his mates about the paw. He leaves an envelope from the power company. It contains a check for £200.

At the pub, Morris tells his cronies about the paw. He is shocked to learn that Herbert's accident was caused by his carelessness while telling about the paw. White and Rose's father (Winter Hall) go to the mortuary, where they are stunned at the sight of the mutilated corpse. Returning, they argue against the women going to the mortuary. Rose hysterically accuses White of being responsible for the accident.



The young engaged couple, Betty Lawford and Bramwell Fletcher, make fun of the magical paw. Fletcher's parents, Simpson and Louise Carter, are not amused.

That night, Mrs. White demands that White make a second wish on the paw. Holding the paw, White says, "I wish my son alive again." There follows a knock on the door—Herbert's special knock. White realizes suddenly what he has done and begins searching frantically for the paw, which again has vanished. Mrs. White struggles with the rusty door latch. At the instant the latch gives way, White finds the paw and silently makes his third wish. Mrs. White swings the door open and cries out in dismay when she sees only an empty street. White throws the paw into the fire. In the smoke rising from the chimney, the expressionless face of a dead monkey appears for a moment. White collapses into his chair.

In the morning, White awakens to the voice of his wife as she complains that Herbert is late getting home. He thinks she has lost her mind. Then Herbert *does* arrive, and as the picture ends, White realizes he dreamed the entire sequence of events that followed his first wish upon the monkey's paw.

In October, Graham completed an 18-page prologue to *The Monkey's Paw* based on suggestions by Merian C. Cooper, Selznick's executive assistant, who was devoting much of his energy to *King Kong*. The two sequences of which this prologue is comprised are from neither the story nor the play, but they add value by introducing action and adventure into a predominantly stagebound film. More importantly, from a commercial standpoint, they occupy the needed footage. The edited prologue was composed of 74 scenes.

The director of the prologue, retakes and process shots, hand-picked by Merian Cooper, was Ernest Schoedsack, Cooper's partner in Cooper-Schoedsack Productions. Schoedsack was an appropriate choice, inasmuch as the prologue was set in India and he recently had spent several months in that country shoot-

ing location scenes for Paramount's *Lives of a Bengal Lancer*.

For the opening sequence, Schoedsack ordered glass paintings by the studio's leading matte artist, Mario Larrinaga, to expand the scope of the Indian street at the RKO Pathé lot in Culver City, set Tom Little's prop men to searching for exotic decorations, and sent out a cast call for Smith and six other featured players, a sword dancer, a juggler, a four-piece Indian orchestra and 49 extras in Hindu costumes and makeup. He hired the voluptuous Ynez Seabury for the role of the tragic dancing girl, but Berman insisted upon using the petite Nena Quartero.

Tover was not available, so Schoedsack asked for Jack Mackenzie, a 40-year old, hard-working Scotsman from Inverness. A first cameraman for the past 19 years, Mackenzie had recently completed *One Man's Journey*, directed by John S. Robertson and starring Lionel Barrymore, which was highly praised for its photographic subtlety. The street scenes were completed in one very long day's work on October 7.

The second sequence, a battle in the Khyber Pass, was staged in Bronson Canyon, a rock quarry a few miles north of RKO's Hollywood studio. Nine actors were cast as British "sappers" and 30 extras were garbed as hill tribesmen. This action was filmed in one night, finishing at 5 a.m. on October 19.

Schoedsack, who seldom admitted any fondness for his studio productions because he preferred the rigors of expeditionary work to those of the board room, termed the sequence "very good." He recalled that "Harry Redmond, the powder man, placed charges in several spots and had pushbutton controls to detonate them. The last was a bomb that exploded right in front of the camera. One thing I like to get into action scenes like that is plenty of dust to add to the movement."

Later, Schoedsack directed close-ups and voice-overs of C. Aubrey Smith while the actor was between calls on a picture at Universal, as well as some process shots involving Nena Quartero's death scenes. These were made on Stage 3 at the Hollywood facility, where the *Kong* crew was working on miniature sets. Another of the *Kong* cameramen, J. O. Taylor, ASC, made the rear projection shots of Quartero using a revolutionary new process screen invented by Sidney Saunders, of the studio paint department.

The Saunders screen, which measured 16 X 20 feet, was made of cellulose stretched on a frame and spray-painted on one side. Previous process screens, which were made of sand-blasted glass, were necessarily small and produced a middle-grey projected image with no white highlights or rich blacks. The images were dulled further because filters had to be used to control hot-spot and fall-off problems. They were fragile, non-insurable and hard to replace. Breakage of glass screens already had caused serious injuries to personnel at two studios. The Saunders screen increased image brilliancy by 20% while reducing hot-spots by about half. It was first used for the sequence in *Kong* in which Fay Wray

watches the battle between the giant ape and a *Tyrannosaurus rex*. The success of these scenes earned Saunders an Academy Award for his part in "the development and effective use of the translucent cellulose screen in composite photography." (The award was shared by Fox Film Co. and Fred Jackman, ASC, of Warner Bros.)

The close-ups were photographed by Edward Cronjager, ASC, one of the studio's leading cinematographers (*Cimarron*, *Seven Keys to Baldpate* and *The Lost Squadron* were among his more notable films of the period). Schoedsack was able to get Cronjager because he had a few days off between pictures.

Just before Leo Tover left RKO, Schoedsack acquired him to do retakes of some of his work for Ruggles. This was necessary for matching of the brief flashback scenes of the original footage to scenes in the prologue.

The final negative cost was \$158,584.82—a matter of only \$5,010.36 over budget.

The prologue opens in a village in India, where Morris and Corporal O'Leary (J. M. Kerrigan) watch an old *fakir* perform his magic. A boy is placed in a basket, which the *fakir* pierces with a sword; the boy emerges unharmed. O'Leary scoffs, insisting he can duplicate the gag. When he attempts to do so, the holy man gestures and O'Leary is paralyzed. Once freed from the spell, O'Leary continues walking with Morris. Nura is thrown into the street by her lover (Lal Chand Mehra), who is wrestled to the ground by O'Leary. When Morris

offers to help the girl, whom he has known since her childhood, she draws away and hands him the monkey's paw. Morris comments that a *fakir* gave Nura the paw in his presence, telling her it will grant her three wishes. He tries to return the paw, but Nura tells him, "I have wish my last wish, the one wish of my heart; I have wish that I may die." As she flees down a narrow lane, a runaway army wagon hurtles past the soldiers and into the lane, crushing Nura under the wheels.

Later, Morris and O'Leary are on the Northwest Frontier with a handful of men, fighting off a nocturnal attack by a horde of zealots. A runner arrives with word that reinforcements armed with trench mortars are on their way. O'Leary falls wounded, and when Morris fumbles in his haversack for medical supplies he encounters the paw. It is still in his right hand when the tribesmen charge. Morris says to a soldier, "I wish those trench mortars would open fire." An instant later, the mortar shells begin bursting among them, falling short of the enemy because they were fired too soon. A bomb explodes next to Morris. (The scene fades and Ruggles' film begins).

The press preview was disastrous. The short running time, the lack of boxoffice cast names, the "unintelligible English accents," and the "morbidity" of a story "dealing with dismemberment" brought almost universal condemnation from the trade papers. Cooper voiced a feeble word of encouragement by reporting to the board of directors that the English distributors liked the picture. *American Cinematographer*, which was



Simpson and Louise Carter hear a familiar knock at the door.



A recent photo of the site of the battle scene in Bronson Canyon. Below: C. Aubrey Smith tells his friends how he lost his arm.



highly critical of some photographic trends at the time, commended it as "another example of artistic effect-photography in a mystery/horror film. A time-honored British story, played by a British cast, this film might, except for Tover's cinematography, have been made in deah old Lunnon. But I have yet to see the British film that is so excellently and tastefully photographed as is this American-made 'quota film.'"

The short, very British-oriented picture was anything but a viable commercial venture of its time. Bookings were almost non-existent and it was little seen and soon forgotten.

Actually, *The Monkey's Paw* was a fascinating picture. Ruggles, Tover and Ullman did a commendable job of recreating the milieu of a London working-class neighborhood, both in the busy pub and the cozy cottage where most of the action occurs.

Schoedsack and his men did equally well by the exotic scenes (they did not receive screen credit). The principals—notably Smith, Carter, Simpson, Kerrigan and DeBrulier—did fine professional work,

even though their names meant nothing to the public. Tover's photography could hardly be bettered (camera crane or no!), being especially inventive in the handling of firelight effects in the cottage and depicting the awful emptiness of the wintry street. Jack Mackenzie's night-for-night scenes at Bronson Canyon are memorable for their simulation of moonlight punctuated by flashes of gunfire. Taylor's projection shots are superior to most similar efforts of the time and Larrinaga's glass shots are flawless. The several montage sequences, which were composited on a shop-made optical printer that would be considered primitive today, typify the skillful multi-image work which was fast becoming a virtual trademark for RKO.

Max Steiner provided strong, atmospheric "exotic India" music for the titles and a street sequence, as well as utilizing J. S. Zamecnik's composition, "Oriental Atmosphere." Steiner conducted a 29 piece orchestra which was recorded by music supervisor Murray Spivack, who also provided the sound effects. Additional music was performed by an Indian orchestra led by C. Monsoor.

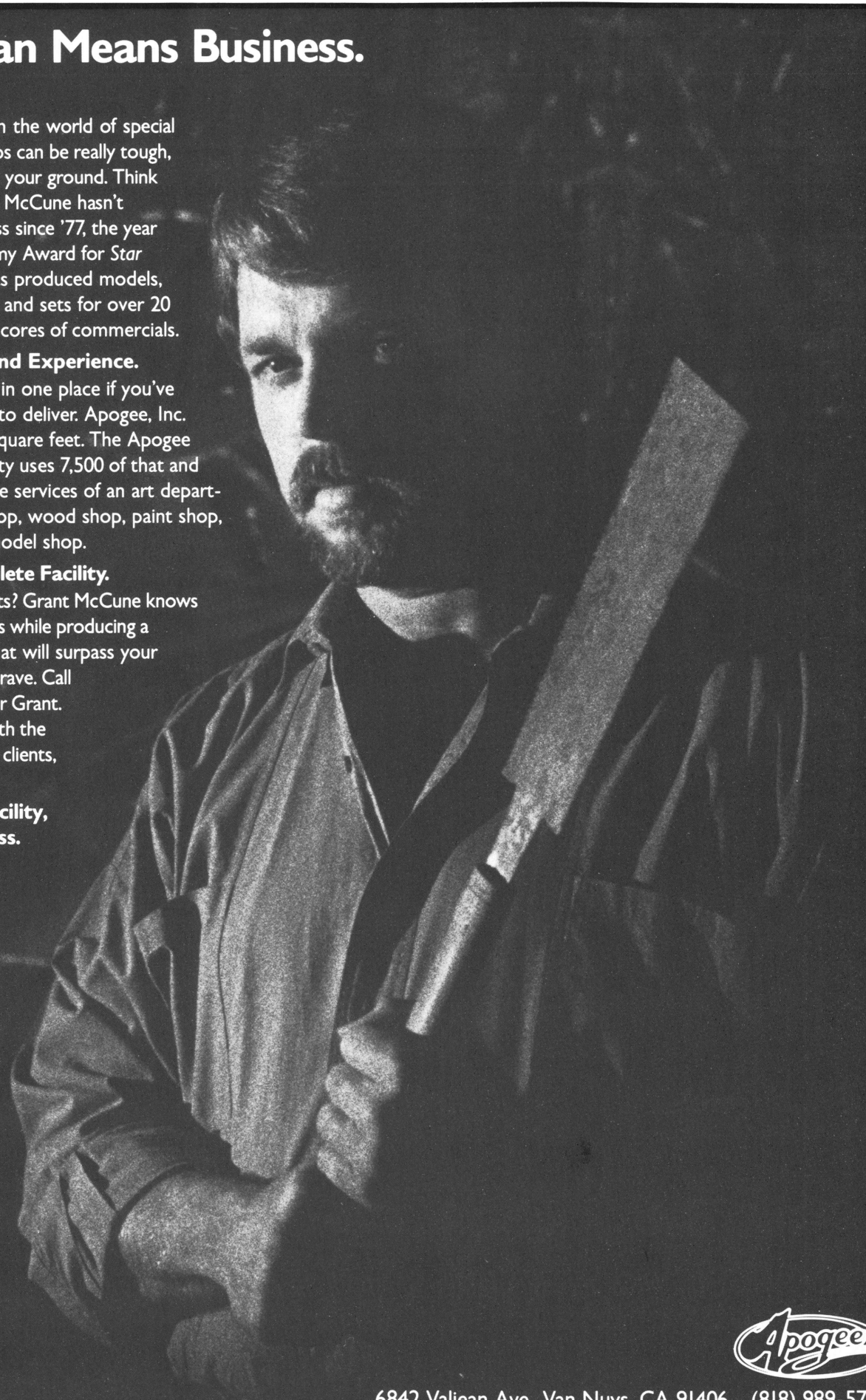
The dream ending is unfortunate from a dramatic standpoint, perhaps, but it can be argued that the story would be unbearably tragic without it. A picture of the size and theme of *The Monkey's Paw* would be a "natural" today as a television feature on a series such as the old *Twilight Zone* and *Thriller* series, but in 1933 it was only a maverick that could not be merchandised. The studio regarded it as an embarrassment and were more than willing to let it sink into an obscurity from which it never has emerged. △

The Monkey's Paw An RKO Radio Picture

Executive producer, Merian C. Cooper; *directed by* Wesley Ruggles; *additional scenes directed by* Ernest B. Schoedsack; *associate producer*, Pandro S. Berman; *screenplay by* Graham John; *from the play by* Louis N. Parker and *the story by* W. W. Jacobs; *photographed by* Leo Tover, ASC; *additional photography by* Jack MacKenzie, ASC, Edward Cronjager, ASC, J. O. Taylor, ASC; *art director*, Carroll Clark; *unit art director*, Syd Ullman; *musical director*, Max Steiner; *assistant director*, Doran Cox; *set decorations*, Thomas Little, G. Rossi; *photographic effects*, Lloyd Knechtel, ASC, Vernon L. Walker, ASC, Linwood Dunn, ASC; *effects technicians*, Harry Redmond Jr., Marcel Delgado, Orville Goldner; *film editor*, Charles L. Kimball; *recorded by* Hugh McDowell Jr.; *music and effects recording*, Murray Spivack; *unit manager*, Fred Fleck; *second assistant directors*, Fred Spencer, Hal Walker; *makeup artists*, Sam Kaufman, Paul Stanhope, Mae Mark, J. Baker; *hairdresser*, Alma Hendrickson; *gaffer*, J. Almond; *stills*, Ollie Sigred-sund; *titles*, Consolidated Film Industries; RCA Photophone sound. *Running time*, 58 minutes. *Released January 13, 1933.*

Mr. White, Ivan Simpson; *Mrs. White*, Louise Carter; *Sergeant-major Morris*, C. Aubrey Smith; *Herbert*, Bramwell Fletcher; *Rose*, Betty Lawford; *Mr. Hartigan*, Winter Hall; *Sampson*, Herbert Bunston; *Nura*, Nena Quatero; *Afghan*, Leroy Mason; *Hindu Fakir*, Nick Shaid; *Police Sergeant*, Col. Gordon McGee; *Electrician*, Scott McKee; *Corporal O'Leary* J. M. Kerrigan; *Lance Corporal*, Leo Britt; *Hindu Lover*, Lal Chand Mehra; *Hindu Fakir in Prologue*, Nigel DeBrulier; *Sergeants*, Harry Strang, Angus Darrock, Harold Hughes; *Juggler*, George Edwards; *Soldier*, Gordon Jones; *Flute Player*, James Bell; *Pensioner*, Sidney Bracy; *Barnmaid*, Aggie Steele; *Commissioner*, Harry Allen; *Bookmaker*, Will Stanton; *Mule Driver*, Ed Miller; *Hindu*, John George; *Merchant*, Joey Ray; *Orchestra Leader*, C. Monsoor.

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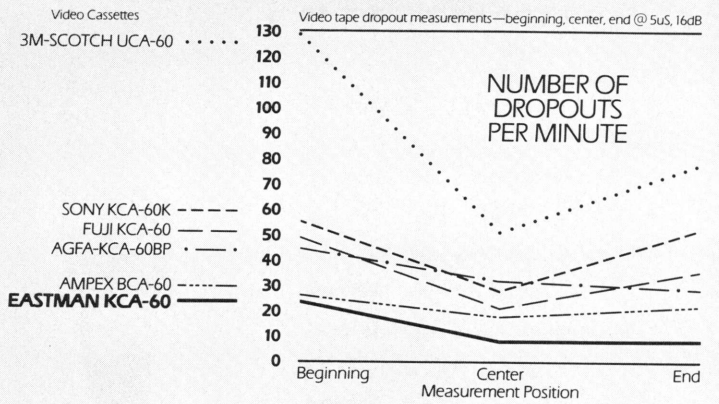
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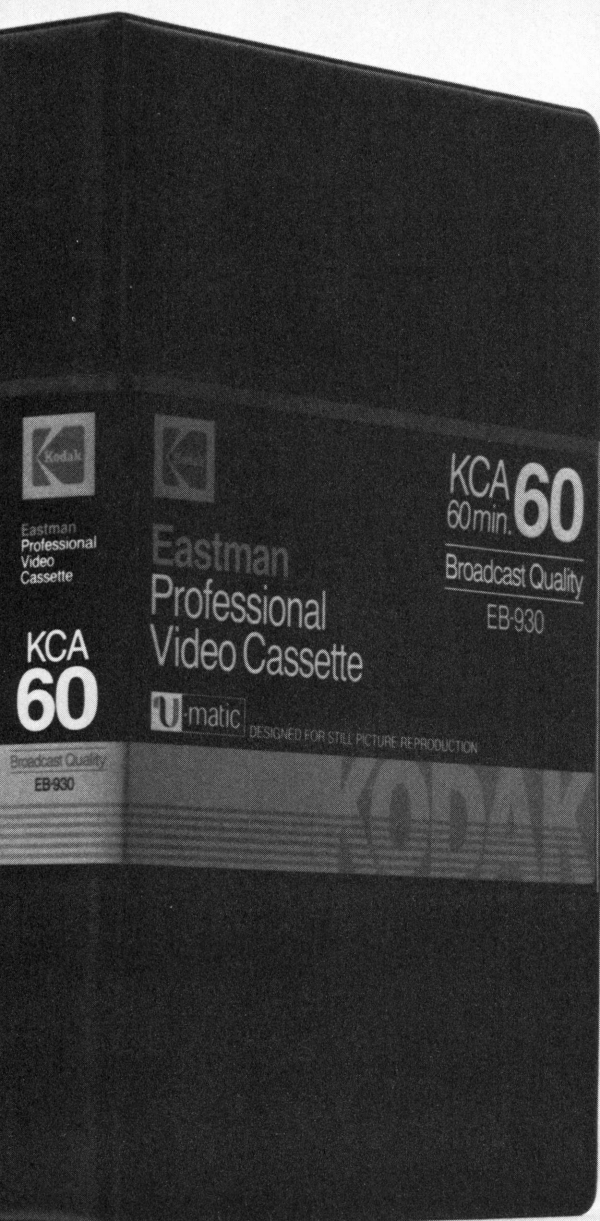
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Dawn light and smoke combine for ambience surrounding scene of Eddie's capture.



All photos by Susan Meiselas, Magnum Photos

Nicaraguan Adventure for *Latino*

by Lauren Gabor

Produced by Benjamin Berg
Executive Producers, Lucasfilm
Directed by Haskell Wexler, ASC
Director of Photography, Tom Sigel

Veteran cinematographer Haskell Wexler, ASC, swapped his camera for a director's chair to make *Latino*, a dramatic feature filmed on location in Nicaragua. For director of photography he chose 29 year old Tom Sigel who, like Wexler himself, comes originally from a documentary background.

Five years ago, Sigel founded Skylight Pictures with partners Pamela Yates and Peter Kinoy. The company has enabled Sigel to shoot documentaries and features on a wide variety of subjects. Over the past four years, his company has produced *Resurgence*, *When the Mountains Tremble*, *Nicaragua: Report from the Front*, and *Witness to War: Dr.*

Charlie Clements, all of which have received international awards and wide critical acclaim.

In 1983, Wexler asked Sigel to cover military maneuvers in Honduras as background for *Latino*. "I had seen Tom's documentaries," said Wexler. "They showed me a marvellous, sensitive eye, with lighting and composition of feature film quality. What else is there?" Sigel was thrilled by the opportunity to work with the noted cinematographer, having been an avowed fan since Wexler's adventurous mixture of narrative and documentary in the now-classic *Medium Cool*.

While the initial idea was simply to film background plates

of the massive military presence in Honduras, it led to much more. With sound recordist Pamela Yates, Sigel stayed on to be with the first film crew to go in to Nicaragua with the "contras." This led to a series of stories for the CBS Evening News with Dan Rather and eventually to the film *Report from the Front*. Wexler was so impressed with the material that in early 1984 he signed Sigel on as D.P. and Pamela Yates as sound recordist for the 16 week *Latino* shoot. Many of Yates' and Sigel's experiences became incorporated in the script of *Latino*, which was written by Wexler, giving it an incomparable sense of realism and authenticity. The

stunning pictorial quality of the film and its consistency of vision mark an impressive debut into the world of feature film cinematography for Sigel.

Latino premiered at the Cannes Film Festival last spring, where its European distribution was launched. It will soon be released in the U.S.

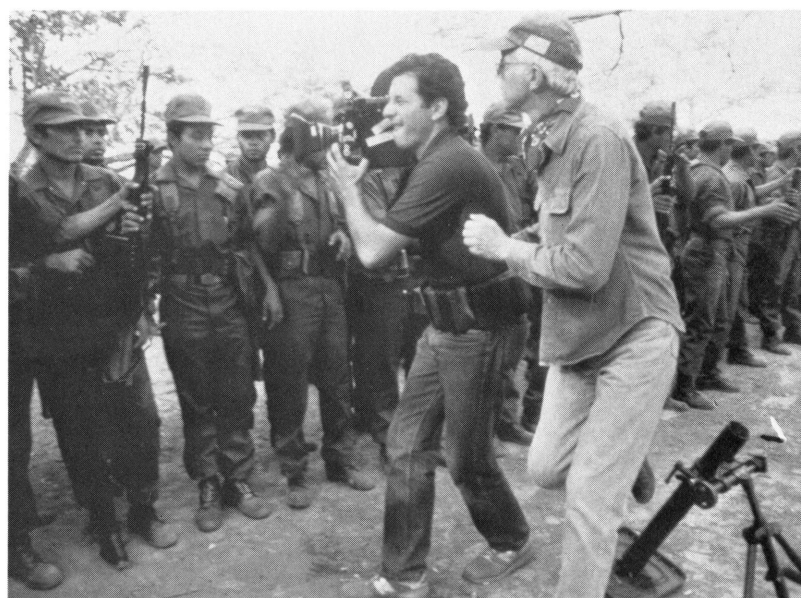
"*Latino* is the story of a Green Beret Vietnam vet, who is sent on a covert operation to organize and train a guerilla army in Honduras," Sigel said while the picture was being readied for release. "The objective is to overthrow the elected government of Nicaragua. It is a CIA operation not unlike some he has been on before, but this time things don't go quite so smoothly. He begins to see what is happening with the war in Central America. That awareness puts him through some very heavy changes.

"It was shot almost entirely in Nicaragua. There are a few scenes which take place in Los Angeles before Eddie, the G.I., leaves. Those were, of course, shot in Los Angeles."

Sigel explained why the picture was shot in a country involved in a very real war.

"Haskell felt it was very important to maintain the authenticity of the story. In fact, he refused several financing offers for the film because they demanded he shoot in Mexico. Haskell was very principled about this. If we were going to tell the story of a nation under attack, the least we could do was film it there. I think it was a very important decision, because the film has a look and feel of reality we could not have captured anywhere else."

The difficulties of shooting in Nicaragua were immense, but, Sigel emphasized, "It also had its rewards. Oddly enough, the danger element wasn't ever what made it tough. The hardest thing was to shoot in a country whose resources have been so drained by poverty, war, and now external pressure. Things we take for granted, like having doubles of



Duplicate sets were built for explosion in the co-op battle scene. Left: Wexler directs Sigel in hand-held photography of Contra formation.

props or picture vehicles present a huge problem in a country with so little. What was fortunate was that the years of insurrection and defense of their revolution has created tremendous inventiveness in the people there. We had one field producer who had been a guerilla for years during the insurrection. This guy could make animals or dozens of extras appear out of thin air. I mean, the more impossible the demand, the more he enjoyed the challenge.

"Photographically, it made some things very difficult. You couldn't just have a place repainted or wardrobe made in any color you wanted. I like to control

everything within the frame, so this was a frustration I had to deal with."

The fact that Sigel was director of photography for a world famous cinematographer placed him in an unusual position. "First and foremost it was a tremendous honor," Sigel said. "Here's this guy with all these academy awards and he trusts *me* to shoot his film."

The situation created a few problems which were soon dissipated. "The first few days it was hard for Haskell to divorce himself from the camera, and that made it difficult for me," Sigel recalled. "But he realized real quick

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that he had to really concentrate on the actors, especially since we had quite a few non-professionals. For me, shooting for Haskell created tremendous pressure, but I think in a good way. When I walked on a set I knew I had to make it look good and do it fast and decisively. Haskell would be working with the actors but I knew out of the corner of his eye he was watching me – and the clock. I work well under pressure and I think the challenge made me grow as a cinematographer.”

Sigel took a small group of key technicians on the expedition, augmenting the crew with Nicaraguan personnel. “I brought two assistants, Scott Sakamoto and Chris Squires. They were supplemented by a Nicaraguan assistant, Ivan Jarquin. Morris Flam and John Newby were my gaffers. I brought two other electricians and the key grip, Robert Feldman, from the states. There were also two Nicaraguan electricians and two Nicaraguan grips. The sound department, Pamela Yates, mixer and J.T. Takagi, boom, also came from the U.S. It was fascinating to watch the North Americans work with the Nicaraguans. You could see the skill level of the local technicians growing every week. By the end I had a Nicaraguan grip, who had been a carpenter before the film, laying 80 feet of dolly track.”

A previous picture Sigel had produced provided invaluable research for *Latino*, he revealed. “I made a documentary called *Nicaragua: Report from the Front* with Pamela Yates. We traveled several hundred kilometers on foot through the mountains of Nicaragua with the CIA Contras who are trying to overthrow the government of Nicaragua. Then we went to Nicaragua and traveled with the Sandinista army in the same exact area we had been with the Contras, in an attempt to film the war from both sides. It reminded me of the Kurosawa film, *Rashomon*, the way we were forming an impression of an event from such diametrically opposed points of view.

“That experience contributed directly to the overall look and authenticity of *Latino*. I wanted *Latino* to be very controlled, yet expressive of the unique location in which we were filming. To do that I needed to retain the energy and spontaneity of a documentary. After all, it is a story of war and revolution.

“I remember a shot I did in the documentary during a battle. It was just a shot of a soldier running but I was hidden in some bushes and the foreground vegetation gave an incredible sense of hiding and fear. Now, including that foreground in the shot was not all that conscious, I just didn’t want to die. But it was what gave the shot its power. I wanted to reproduce some of that sense in *Latino*. Now, however, we had the ability to control what was in front of the camera. Because of that I wanted to have a feeling of realism without being tied to realism as dogma. This meant the introduction of subtle elements which would take the film out of the strict limits of reality into the realm of the exaggerated psychology of war. It could be a simple thing – like foreground-background relationship or use of complimentary colors, but it should not draw attention to itself so as to destroy the sense of hyper-realism.”

Experience had instilled in Sigel the importance of using highly versatile, dependable equipment on a remote location shoot. “The main camera was a BL-III. I had an Arri-III for a second camera and high speed. I also had a couple of CM-IIIs for handheld but actually prefer to use the BL. On the interiors I used the 20-60mm Cooke zoom and the Zeiss superspeeds. For exteriors I had a 6 to 1 and a 10 to 1 Angenieux but also used Canon telephotos a lot. There are some complete scenes – masters, close-ups, the works – that I filmed with 600mm and 800mm Canon telephotos.”

Lighting under primitive conditions was another important consideration. “I took an HMI

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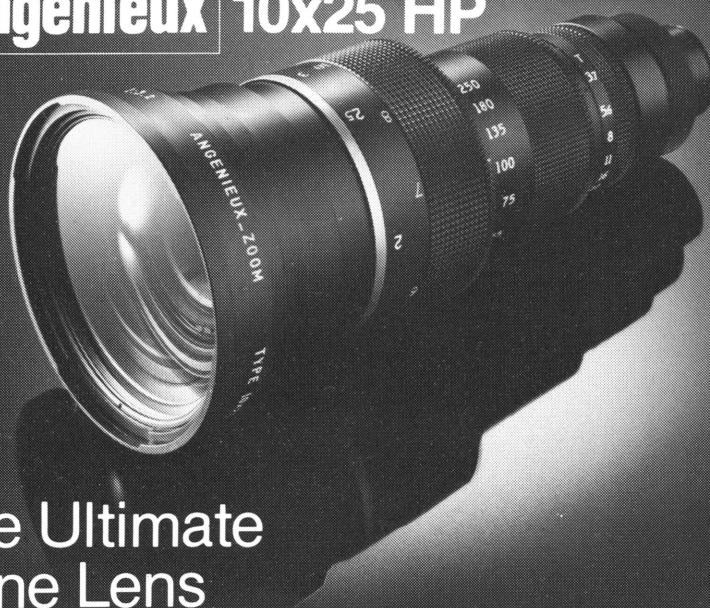
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package with two 4Ks, five 2500s, five 1200s and two sunguns," he recalled. "For tungsten I had a small package with nothing bigger than a junior. What I did take was a lot of practicals – Ph bulbs, Chinese lanterns, umbrella lights, dashboard lights and so forth. I knew I wouldn't be able to get anything once I was down there, so I took everything I thought I would need. It was a good thing. At one point there was a tremendous light-bulb shortage throughout the country. You just couldn't take anything for granted.

"Power was also a big problem because we couldn't afford to take a serious generator, so we put crystals in two Honda generators. D.J. Lootens, our second electrician, built blimps for them. In general, though, we tried to get the electric company to give us a drop from a pole if we were in a location where there was electricity, which unfortunately we often weren't."

Sigel found that the most difficult lighting problem was the exteriors. "In Central America you have a very hard, contrasty light. Most of the actors have dark skin and wear hats. I tried as much as possible to force production to use the good parts of the day, but it just wasn't always possible. So I would try to use silks and get as much atmosphere in the air as possible: dust, smoke or whatever. But really 90% of making exteriors look good is choosing the direction in which you're shooting.

"The exterior fill was usually bounce from b-board or silks. In one location I covered the side of the camera truck with b-board and would move it around from set-up to set-up."

A large-scale battle scene toward the end of the film provided unusual challenges to the cinematographer, according to Sigel. "That was tough because I had to match day-for-night with night-for night. The day-for-night I under-exposed two stops. The lens always had a black net on and usually one or even two grads. As much as possible any bright vege-

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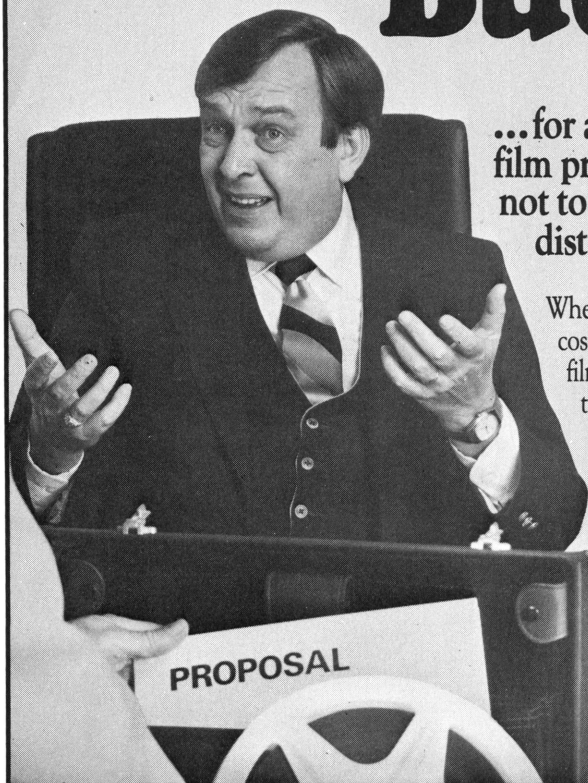
tation or reflective objects were removed from the frame. There are two theories about day-for-night. One way is to go for overhead sun or diffused cloud cover. The other is to have a very directional source, like at magic hour. Even though that is very unrealistic compared to what the moon does I find that it is psychologically more believable, and cuts better with night-for-night. It was the scene which gave me the most work in the timing, but Gene Zippo, the timer at DuArt Labs, did a great job. It's a really beautiful blend in the final print."

Even when working in a distant location, Sigel managed to work closely with the lab. "It is essential," he said. "I saw no dailies on this film because of the shipping difficulty. I had to be on the phone to Don Donigi several times a week. We did use a video assist extensively. In the evening the tapes were reviewed in order to evaluate performances. But visually the video can often be very misleading. More than once I was making emergency phone calls to the lab about a glare or reflection which, it turned out, only existed on the video. Also after evaluating the tapes, Haskell would often want to go back and do pick-ups to improve on performance or to add coverage. This would mean I would have to match a scene filmed perhaps weeks earlier without ever having seen the dailies.

"I'm amazed at how consistent the final print actually is. The relationship with the timer is very critical, especially in post-production. Even if I had seen the dailies, it makes no difference if they look great if you don't see the job through to release print. A lot of things happen to a film when you start making interpositives and internegatives. The release print, after all, is what the audience sees. And they're who I shoot for."

Lauren Gabor, office manager for Skylight Pictures in New York City, writes magazine articles when time permits.

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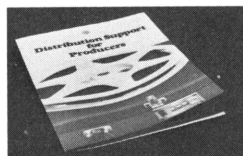
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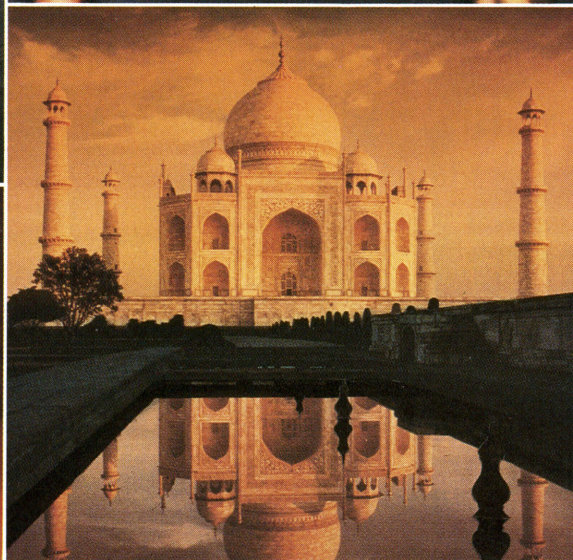
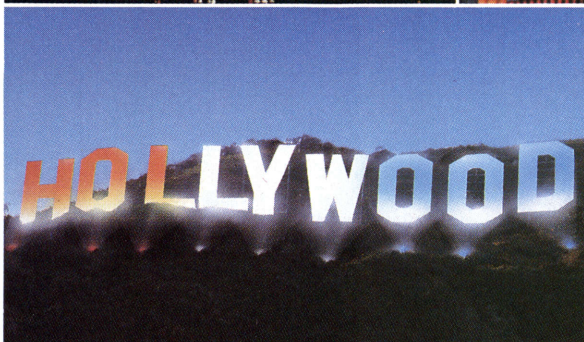
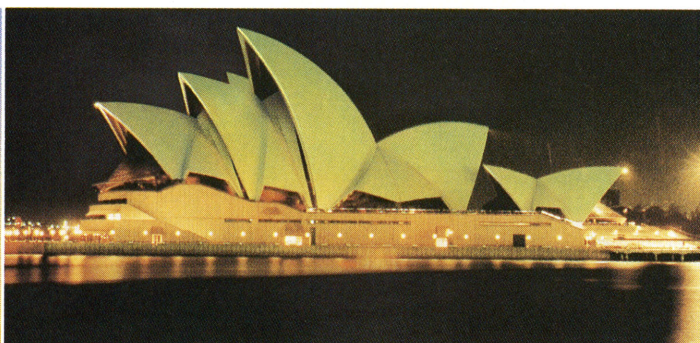
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Directed by Guy Hamilton
Director of Photography, Andrew Laszlo,
ASC
Production Designer, Jackson DeGovia

by George Turner

"The Destroyer," hero of a series of paperback novels by Warren Murphy and Richard Sapir, is a professional assassin who goes beyond the law to protect America from its enemies. His partner and teacher is a wizened Korean martial arts master. In more than 60 books this ruthless but somehow likable pair has knocked off more foreign and domestic villains than James Bond and all his fellow 00 agents combined. Their popularity with the public is enormous, with some 20 million copies of "Destroyer" books in print.

Now there is the movie version, which Orion Pictures hopes will exert the same charm upon the filmgoing public. *Remo Williams: the Adventure Begins* has been produced in a spectacular manner, utilizing the origin story of the first book ("Created, the Destroyer") and then sending the heroes off on an adventure in which they eventually face their enemies atop the Statue of Liberty.

"In my opinion, the film goes beyond the books in that it is visual," Andrew Laszlo, ASC, said while he was wrapping up his duties as director of photography. "The characters don't have to be imagined. They're on the screen and they're colorful, interesting, charming and exciting."

Fred Ward (who was Gus Grissom in *The Right Stuff*) portrays a NYC policeman whose patrol car is waylaid and crashed into the East River. He wakes up with a new face and identity as Remo Williams, a recruit of a secret government agency called CURE. His teacher, Chiun, is played by Joel Gray in a remarkable makeup by Carl Fullerton.

Laszlo is an ideal cinematographer for the complex action of *Remo*. He started in 1946 as an apprentice in the film industry of his native Budapest. "It was a very small local industry, but a good one," he explained. "If you were lucky enough to get in you had to go through an apprenticeship designed to take you through all phases of all the departments." Upon coming to the U.S., Laszlo was drafted into the Army Signal Corps, where he trained at the Army Pictorial Center school and was assigned to "a very active photo unit." Today, he lives in New York during the rare intervals between pictures. His recent films include *The Warriors*, *Streets of Fire*, *Southern Comfort* and the *Shogun* series. He is now working on *Poltergeist II*.

Laszlo found the director of *Remo*, Guy Hamilton, a good man to work with. "He is not merely on a level with the challenge of this film, but high above the challenge," Laszlo said. "He handled it beautifully under some very difficult conditions."

Hamilton, a tall and aristocratic-looking Britisher, was destined for the Diplomatic Corps, like his father, when he decided to become a film director. "To my family this was rather like running a brothel," Hamilton recalled. "In 1939 I walked into the Victorine Studio in Nice - my father was in the embassy in France. I got into the accounts department and licked wage packets all week. When I went in to complain, a grand old man said, 'You've been here a week, haven't you learned that it takes more than a director and a cameraman?' He put me on a camera crew, then in the sound department holding the bamboo

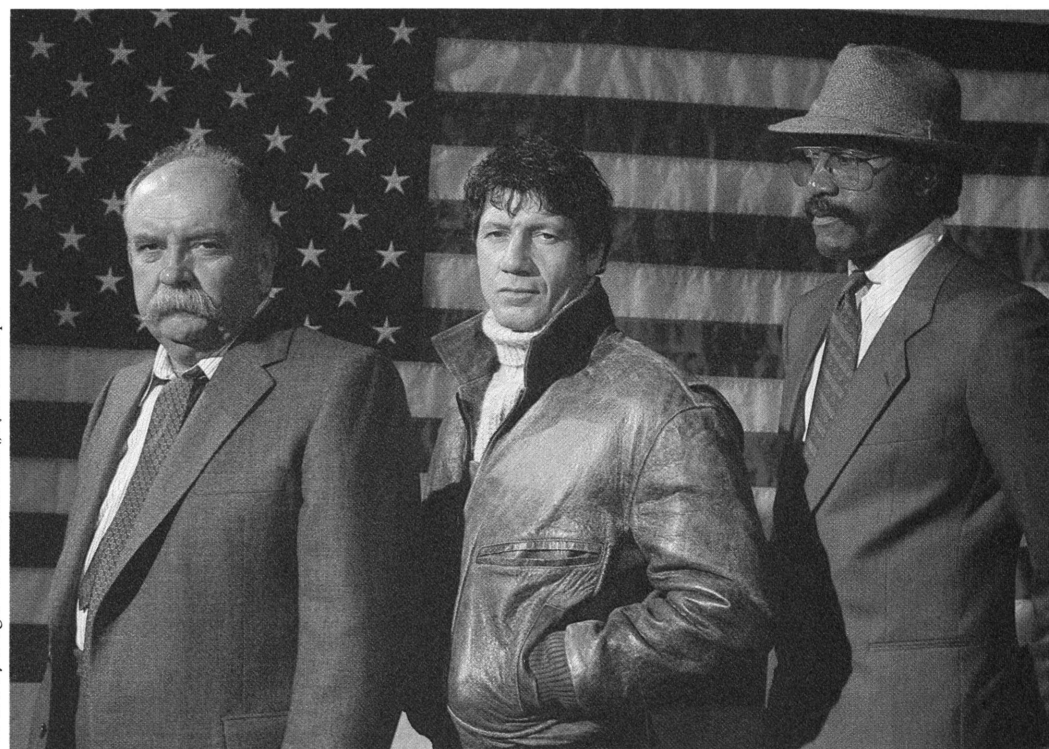
pole, and the cutting room, cleaning bins. Then he told me, 'You've learned that if you're going to be a director you have to bang technicians' heads together because they all talk crap.' Then there were four years in the navy, then work as assistant director with wonderful men: Preminger, Huston, Negulesco, Reed. But you learn more working for the *bad* directors. When you see a director get into trouble three times a day, you say, 'I'll never make *that* mistake.'"

The idea of using the Statue of Liberty as a setting for a classic chase sequence originated with Hamilton, who, as director and co-writer, devised many of the wilder adventures of James Bond in *Goldfinger*, *Diamonds Are Forever*, *Live and Let Die*, and *The Man With the Golden Gun*.

"They wanted another Bond," Hamilton said during production of *Remo*, "but if I wanted to do Bond I'd do a Bond. I decided to concentrate on Remo and Chiun, a very comedic couple. They're amusing and touching – that's the heart of it. It's surrounded by some big action sequences, but you dig the relationship or it doesn't work. There's really no secret to the Bond pictures: fun, adventure, pretty girls, suspense – all the same elements that go back to *The Perils of Pauline*. The difference is in the packaging. You can go on using them if people don't get fat and lazy, but if it remains fresh, the elements are the same."

Hamilton said that he gets a kick out of writing suspense sequences.

"The fun is to play with the audience because they're always ahead of you. Let'em think that something is going to be, then screw it up somehow. Have a guy run up the stairs to escape through a door, but it's locked. And there's what I call the snake pit situation. Put the hero into the snake pit along with a two foot box, a four foot box, a three foot ladder and a small rope. He stacks the boxes and puts the ladder on top – but it doesn't reach. What must he do?



Photos by Adger W. Cowans and Joyce Rudolph



Brimley, Ward, Preston—heroes all. Below: Remo expends the full measure to save the heroine (Kate Mulgrew).

It's sort of a countdown; we give the audience 60 seconds to figure it out while *we've* figured on it for six months! Very unfair.

"If I do an action sequence, I search for a unique situation. Everybody does helicopter chases, boat chases, and so on. I can't set about them without some sort of feeling of something different. Like the first time I saw the French stunt of driving a car on two wheels I thought, 'how could I use that?' Aha! Suppose you were

being chased and you got to a dead end and there was a *very* narrow alley? I used it in *Diamonds Are Forever*. It was the same here. I have some dogs at home which amuse me. I was looking at the courtyard of the hotel here in Beverly Hills, and supposing we had dogs that were intelligent but didn't bark. If I were down by the swimming pool and three Dobermans came at me, I'd skin up something. One would go up the staircase and cut me off, the others

Remo dodges his tormentors on the scaffolding built for refurbishment of the Statue of Liberty.



would go the other way. Suppose there were a fire escape ladder and I grabbed it and then the dogs tried to follow. A dog grabbed it, but his weight was insufficient to pull it down, so the second grabs hold of him and their combined weight does it. Then, you'd say, "Those dogs are smart!" So, using the geography of the courtyard, I worked it out.

"Then, when I saw the Statue of Liberty, with all that scaffolding on it, I thought it was put there just for *me*! Literally, in 10 minutes, I figured out my heroes, who the villains were, and everything. I didn't want to use back projection and matte paintings, as Hitchcock had to do (in *Saboteur*,

1942), because I believe in shooting it live."

A closer examination of the statue proved disappointing from Hamilton's point of view.

"Unfortunately," he sighed, "when they built the scaffold they hadn't read the script. There was no danger up there. It was absolutely *safe*. Basically, the sequence was impossible to shoot there because I'd have had to reposition all the scaffolding, and there is rather a lot of it. I was able to move one or two bits, but they were reluctant to let me. That's how we came to rebuild the scaffolding and part of the statue in Mexico."

The "part" is the upper 85 feet of the revered lady, extending from the middle of her chest to the tip of the torch. Larry Siegel, who co-produced with Judy Goldstein, was awed by the magnitude of the new statue. "An amazing piece of work," he said. "Jack DeGovia devoted much of his life to this."

DeGovia, the production designer, described the statue as "a very difficult reproduction. No one has ever done it *exactly* before. The number of measurements we had to take was enormous. Because it had to be intercut with the real thing, it had to be exact. Thousands of individual judgments were necessary. We had to reproduce the riveted copper plates, the distinctive patina, the oxidation.

"We had extraordinary cooperation," DeGovia emphasized. "UBS Construction, who did the scaffolding for the real statue, actually sent one of their men, Mike Kelly, to Mexico, as well as lots of the actual scaffolding, which was specially designed for the statue renovation. We also had a safety supervisor at the statue. We never could have done it without the people who run the commission itself. It was a very special crew with real pride that went way beyond the call of duty, striving with dedication toward absolute perfection."

DeGovia had to analyze the interior construction of the

real statue before he could design the armature. "We started with a pipe and plank scaffolding, and over that a wooden armature, then it was all tied with tight mesh screening, then sprayed with foam. Then the features were carved from foam by ten magnificent Mexican sculptors. At this point we were working at a size one-quarter inch *less* than the actual size of the statue, and then it was all sprayed with fiberglass a half-inch thick, then sanded by hand by 25 men for three weeks. All copper plates and rivets were put in and beautifully painted. We got a fine scenic artist in New York and I told him, 'Paint me a card about one yard wide and give me the *exact* color and texture of the statue.' This became pure gold for us and was used along with detailed photos to get everything right.

"We had to do the vertigo shots on the real statue. We designed the mockup for up-shots. We needed chasms, gulfs to leap across, so we moved the scaffold away from the statue to make it more dangerous. The real one is very safe.

"We built it at Iztapalapa, Mexico, a beautiful location near Mexico City between the two great volcanoes, Popocatepetl and Ixtacciuatl. It cost \$50,000 – about one sixtieth the cost of the job of overhauling the real one. It would have cost about a million to do it in the States."

Hamilton recalled that "technically, it was very difficult to work, because we always had to shoot upward. We had a huge construction crane that took us up about 120 feet, and we got up there and realized that we couldn't get the shot we wanted because there was Mexico City shimmering on the horizon. Mixing New York and Mexico is not easy. It is all cuts, no process, even including Remo sliding down the arm. Fortunately, I had Andy Laszlo.

"I love working with Andy," Hamilton commented. "A tremendous cameraman, a great enthusiast, and he gave me tremendous strength. It makes such a

difference for a director to have a really experienced cameraman. We had difficult interiors, a lot of matching, weatherwise, and *fast* moving action. He's worked on everything from TV to the biggest features – there's nothing he hasn't done. I have to collaborate very closely with the cameraman. Andy has a good story telling sense; some cameramen are magnificent cinematographers but have no story sense. One can live with that, but if they have a good story sense it cuts a lot of corners very quickly."

Laszlo echoed Hamilton's recollections of the difficulties of shooting alternately on a colossal statue in temperate New York City and on a partial replica in semi-tropical Mexico, and expanded them from the cinematographer's POV.

"On the statue in Mexico, which is an unbelievably accurate replica of the original from the chest up, no angles looking down were possible," Laszlo said. "We knew that before we went to Mexico, so the angles that involved looking down were all done on the real statue before we went down there. The stunts and the action were so carefully designed and choreographed by Mr. Hamilton and Glen Randall, who was our stunt coordinator and second unit director, that – in the words of the film editor – 'it fits like a glove.' But there were problems.

"Imagine, coming off a major thoroughfare from one of the world's largest cities. Looking out of the car window, all of a sudden, you had this eerie feeling that you were in the wrong place, that something was wrong, because over the hilltop you saw the outstretched arm of the Statue of Liberty surrounded with the tops of the scaffolding, and as you got closer to it there was the statue sticking out of the hilltop. One could fantasize: could this be the result of a nuclear war or some catastrophe, that this enormous statue normally in New York Harbor had been completely buried underground?



Statue replica sculpted and constructed on location in Mexico.

"Well, one morning you arrive and it's a beautiful, clear, sunny day, and the next morning you arrive and it's another clear, beautiful summer day. Then on the third morning you arrive and it's gray and it's overcast and the wind is howling and it's cold – as was the case. *Now* what can we do? We still have to complete that section. When it becomes so extreme that no matching would be possible, when you cannot alter the character of the scene in order to accommodate the conditions that exist, then you just have to reach into your bag of tricks and pull out a rabbit. But: you have to have the rabbit in the bag to begin with.

"So, we used filters and we went in knowing that the conditions in Mexico would be different. Therefore, starting on the statue in New York, we tried to create by certain approaches, the conditions that we thought would exist on the statue in Mexico by the time we got there. It turned out very well in that we find that



Laszlo, Mulgrew, Ward, and Hamilton. Top of picture: Jeffrey Laszlo and Joel Grey.

the footage is matching and that the differences that do exist overall will not be noticeable. At least that's what I thought when I went to see an uncorrected cut, in which the colors and densities were not adjusted (by the laboratory) and I know, having seen it and knowing what we have done, that we will have no problem in making the necessary adjustments."

Laszlo revealed that very little lighting was done on the statue in New York or Mexico. "During our first location scout through Mexico, long before the statue was erected, we had asked that the statue *not* be put up correctly with regard to compass orientation. In fact, it was put up with a 15 degree variance so that we would have that much more sun per day to work with. There was really no lighting required except in one particular scene when Remo and Chiun climb up into the head in the crown of the statue. This was an interior shot done on location and required a certain amount of lighting. Most of the lighting at both locations was done with HMI lights as opposed to arc lights or incandescent lights,

except in the instances where, due to the stunt requirements, we were running the cameras other than at sound speed, 24 fps. Using HMI lights at certain speeds will create a flicker or a roll, and one has to be very careful with that. But lighting was minimal and we had no problems on that score."

Not surprisingly, the presence of the duplicate statue attracted a great deal of attention. Laszlo recalled that there was "an endless procession of visitors and tourists. One day a group of nuns showed up from a nearby convent and it so happened that we had a problem in that every afternoon the sun would disappear and huge storm clouds would come up. In some instances we had had intense rain. One of us jokingly called down from the top of the scaffolding to Larry Siegel to see if the nuns would be good enough to pray for a little good weather. Larry approached them because he thought they might get a kick out of such a request, but they took him seriously and they immediately started praying. I don't recall if we had any good results, but they did pray for us quite seriously."

Another setting which was done on location in Mexico represented the Pacific Northwest and was built at an old ski lodge in the Pass of Cortez. Degovia stated that it "was picked for its scenic possibilities. It had spectacular vistas at an altitude of almost 13,000 feet and we were shooting there for about four weeks. Another set was built on an even higher level, about 14,000 feet, but the actors had so much trouble breathing that we finally had to recreate it down in Mexico City. We actually brought a cardio-vascular unit and a heart specialist with us because of the altitudes."

The Mexican locations, whatever their physical beauty, were not for picnics. Laszlo described them vividly:

"Try to imagine yourself on a hillside which is a 75 to 80 degree grade and you are walking up and down in volcanic dust which is so fine that if you sneeze a cloud of dust will come up. In the evening when we would take a shower and look down into the tub, we couldn't believe the mud that was collecting there. Working in this dust at over 12,000 feet was a most difficult assignment, not just for the actors but for everybody involved, but we did it.

"Understand," Laszlo emphasized, "the DP doesn't necessarily pick the locations. Locations are picked on the basis of (one) availability, (two) practicality and (three) schedule. Someone may say that there is a much better location for these scenes 350 miles from here, but since the bulk of our operation is here, can we make do with this? And, as happens so often in a situation like this, a director of photography sort of feels everyone's eyes focus on him. Then you're on the spot and you have to say your piece: *yes* or *no*. if you say *yes*, you may accommodate the financial considerations of the company, but you may feel that you shortchanged the film. Shortchanging the film is, in my opinion, *not* what one should do. I think one's primary consideration must always be,

'how can we make this thing better?'

"Yet, there is a fine line, and you say to yourself, 'well, what can we do to make this work?' because of scheduling, financial, logistical and all other considerations. At times you have to reach into your bag and pull out a solution, then say, 'yes, we can do it, and then you do it and you surprise yourself that on the basis of necessity how well the situation has been accomplished.

"There are other times when you say to yourself, 'If I tell the company that we can do it and we will do it, will I have served my position right?' And you come to the conclusion that you should not. This situation came up on *Remo*, where, simply because of the proximity of the location, a decision was made to try to do certain scenes there. This particular location was in a television relay station and a certain unused portion of the building was going to be turned into one of our sets. When I first heard about this I assumed we were using this location because the vista was magnificent. Then I realized, as I started looking at the script pages when we arrived (and by this time a certain portion of the set was up there) that we were not using the vista. We were turning the building into a little studio without the benefits of shooting in a studio – without movable walls, without high ceilings, without proper floors. The logistics would have been an absolute nightmare. There was one little dirt road winding up; it would have taken us days to get our equipment up there *if* we could have done it without a hitch. If a truck had turned over it would have blocked us. There were no wreckers readily available.

"So," Laszlo concluded regretfully, "I voiced an opinion that this was a big mistake. Everyone was receptive – they all understood and they concurred immediately. The decision was made to move the scenes and the sets back into the studio and that's exactly what we did. I would not

have made this observation or the suggestion had I not believed fully that this was the right decision. It turned out that it was and everybody knew it. The weight of these decisions makes them very difficult and you must try to give the answers that are right and are in the best interests of the company."

Laszlo recalled an earlier incident of similar magnitude when *Streets of Fire* was in production at Universal. A large area of the backlot was to be covered with tarpaulin so that night shots could be made during daylight hours.

"The production department asked me to look at a certain kind of tarp which they had on hand in huge amounts. If it could be used it would mean a saving of about \$800,000. The moment I arrived on the stage, I knew that it could not be used. In the first place, it was blue. Secondly, it was not totally opaque, so that it transmitted a certain amount of blue light. Long before we even started shooting I was put in a position where I had to say no to an \$800,000 saving. But I had to say it, because had I said yes it would have backfired on every one of us in the long run. It was the right decision and it worked very much in the best interests of the picture."

The interior sets for *Remo* were, for the most part, set up at Churubusco Studios, the large production center in Mexico City. According to Larry Siegel:

"One of the more remarkable sets was a mountain interior redesigned at Churubusco. In the picture, the heavy leads the heroes through miles of concrete corridors into a gas chamber trap. Jack designed the doors alike so they would seem to be walking for miles, but we used the same corridor with many different camera angles. There were only two or three hatches, but it looks like 30."

Judy Goldstein noted that "Guy said that with that corridor he could shoot an entire mo-



Grey, Master of Sinanju.

tion picture and never repeat an angle."

Degovia said that the ability to design sets that yield much production value from little construction was learned in his days at Universal TV, where he designed shows such as *The Six Million Dollar Man*. "They had to be made on the backlot and we had to decide how to set things up so that the gag worked and the story worked. It is a very common problem in the art department, but if you do it well on the stage, people don't realize how economical it is."

Judy Goldstein added that four inside settings were built at Churubusco, plus some backlot work. "We had to create the East River in a tank which hadn't been used in years. In New York, in November, we got a shot of a car going off a dock in sub-freezing weather. In February, at Churubusco, we did the shot of the car under water, with Fred Ward swimming out of it. Even getting that NYPD car into Mexico was a problem, and then we couldn't get it out. They made us leave it there."

The logistics of working between New York and Mexico City seemed overwhelming at times, according to Degovia. "I set the world's commuter record. I had a staff both places to make decisions: Woods MacKintosh in New York, Brandy Alexander and John Jenson. John began as construction coordinator, but he's been my art director on two pic-

tures and he was in charge of the statue.”

“The Mexican craftspeople were very good at what they were doing, but the U.S. set pieces were very difficult for them,” Siegel observed. “And they had a hard time with science fiction. This was a big production problem we didn’t anticipate. Jack designed a *Star Wars* space weapon. They had no expertise at even visualizing such a thing. If we hadn’t had the American production staff it would have been almost impossible. We overcame it with a lot of work on the art department’s part.

“We had to hire standbys, even a standby composer! We had problems bringing weapons into the country. We couldn’t get a 60mm machine gun into the country, so we had to duplicate one. We had to import a 50-ton wide-load machine called a yarder, which is made for hauling timber. It was okay from Oregon to El Paso, because our highway system makes provisions for wide loads, but it isn’t true in Mexico and we had to take a lot of back roads.”

Laszlo had his share of difficulties with Third World movie making. “American studios are making picture after picture in Mexico because of the financial situation – the strong dollar, the weak peso – and it offers very good deals,” Laszlo explained. “However, the studio has shortcomings. The equipment is not as readily available as it is in Hollywood or any of the major film centers of the world. It may not be the same quality equipment, and certain pieces of equipment are just plain ‘not available.’

“I have nothing but the highest regard for the people that worked with us on the picture, and I do refer to the Mexican crew,” Laszlo was quick to point out. “All of them were wonderfully committed to our picture, highly motivated to do a good job, terribly courteous, and – most importantly – experienced people who have done major pictures one after the other. Yet the operating procedures are things that we have to accommodate and learn to live

with.

“You don’t plug in certain lights, you tie bare wires onto nails driven into a board. You don’t have the safety regulations of our major studios in that the scaffolding overhead doesn’t have railings and it doesn’t have the lamps set on proper mounts as opposed to putting them into holes that have been drilled into the wooden scaffolding and, of course, over the years have enlarged through usage. Because the scaffoldings are not tied off, then every time somebody walks, all the lights move. So you may spend a great deal of time setting these lights, and when the electrician on top jumps to adjust one, they *all* go out of kilter. At times we found that the equipment we had counted on just before it was about to be used turned out not to be available and other pieces of equipment were substituted, which in some cases didn’t do the job at all. We had to improvise on the spot to accommodate the situations.

“This takes a certain amount of adjustment on our part,” Laszlo admitted, adding: “I don’t want this to sound too negative, because when you see the film, you will see no indication of any of this. I might also say that I had, in my 33 years in the business, occasions to work in the Far East and Africa, every country in South America, most countries in Europe and in Japan – and some of the studios were, in fact, no better. Working in Japan, a country that is looked upon as one of the most advanced, technologically, I found that the largest studio in Tokyo did not have barn doors or diffusion for the lights! In Portugal, the equipment that was brought in from Spain and Italy was not compatible and again we had to improvise. So, in no way do I want you to think that I’m faulting Churubusco Studios, but the fact is that when you’re doing a film, that film for that period of time is the only game in town. It makes no difference who does what or what other pictures are shooting at the same time or how

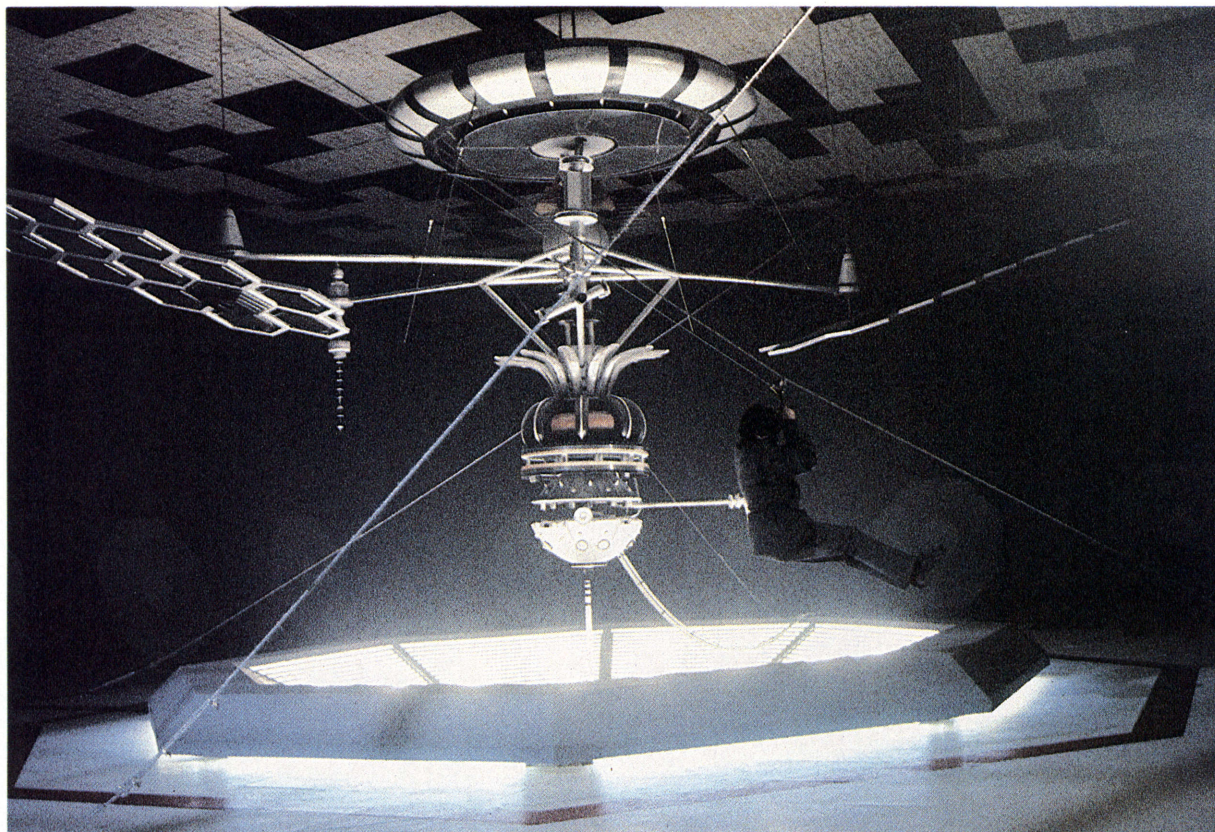
well they’re doing, your picture is the only game in town. It’s the one we have to do well under the circumstances.

“This gives one an opportunity for improvisation, of not looking at a problem and saying, ‘I can only do it one way and unless I can do it that way we cannot do it.’ There’s no such animal in my life. When I find that the way I would like to do it is not feasible, if equipment that I would like to use is not available, if the expertise of people who are working with me is not what I am used to, then I find another way. Time and again I find other ways, and time and again I hope the result will justify the changes that we have to live with in order to get satisfactory solutions to the problems. This holds true wherever you’re making films, not just at Churubusco but at MGM, at Universal, at Paramount. Every moment of every day is a new challenge, even though you may have done it a hundred times before, even though the people who work with you may have done it many times before. Holding up the light meter is not enough; something else has to go into it. It’s knowing the problem, creating the solution, and then enhancing it.

“And so, in a way, Churubusco was a very pleasurable experience for me, because there was a challenge and the challenge was accommodated.”

Laszlo described a sequence which was begun as a practical exterior in New York and completed on a Churubusco stage:

“That is when Remo is taken to meet Chiun, his master, to start his training. The street scene ends at an alley where there is an elevator. Of course, that elevator is real and it was moving. The elevator at Churubusco did not move, yet, due to some very basic “special effects,” when you see the film you’ll swear that it moved, stopped at the proper floor, the inside door opened, the outside door opened, out stepped Remo; and later that he stepped into the elevator and it went down. It did not move. It was on



solid studio flooring. But those are the shots that, simple as they may be, give the cinematographer and the rest of the crew a tremendously satisfying feeling, because you accomplish something that's impossible; it's magic. Guy Hamilton is quite a good magician and he is a firm believer that it is wonderful to be familiar with magic when you work in this business because, in fact, that's what you're dealing with. You're able to create sunlight and lighting and night; you're able to do things that are fun to do and yet achieve a purpose."

Laszlo revealed that most of the U.S. interior sets "were either practical interiors, which is to say they existed in a practical location, or we accommodated a practical location to suit our purposes. The Organization of American States conference room was real. Remo's hospital room and the doctors' dressing room were created in the actual hospital. The interior of the ambulance was real and the ambulance was traveling in a driving rainstorm through

New York City to Manhattan at night. The camera was located on the outside of the ambulance with the operator standing on a camera platform, soaked to the skin even though he was wearing a rain suit. Unlike an unmanned camera, which is the customary way of doing a traveling shot, this could be operated during the shot. This paid off handsomely, as the shot is quite good and very unusual. It's been done on a number of films, but it is a bit dangerous and difficult, particularly under those conditions."

The operative cameraman, incidentally, was Laszlo's 29 year old son, Jeff.

"Film making," Laszlo mused, "is a very funny process in that all films are made more or less according to the same or similar techniques with the same or similar equipment and yet no film of any note is made completely according to a formula. One can't say when a particular lighting situation comes up that you must use this kind of a light or that kind of a light, no one can say that one is

better than the other. You can approach a lighting problem or a photography problem from a million different directions, and come up with a million different solutions, all of which may be good, all of which are dissimilar.

"Unlike many other businesses, we do put our time in every day and six days a week. I have to be there all the time. I have no counterpart on the set, no best boy. I have to be standing by the director's side when he comes on the set, when the scene is first rehearsed and when we block it. After that I have to be there even while the director is not, to light it, to set up the camera, the camera moves, the angles, select the lenses. I have to be there when we try it the first time, make the changes as are necessary, and then be there to watch and see that it's going to be committed to film the right way. At times it's even difficult to go to the bathroom. But it's my life and I love it and I really wouldn't do anything else." △



Photos by James H.N. Hudnall, Leigh Wilks, Carol Hughes, Anne B. Keiser, Nora Lee and Dennis B. Kane

20 Years With National Geographic Part II

by Nora Lee

"The first time I swam with the whales, I realized what I was seeing down there was really brand new. Nobody had ever seen anything like it . . . and I wasn't going to be able to take notes on it. That was when I went and got myself a 16mm camera and a housing and put it all together for the 1976 season."

—Jim Hudnall,
scientist/cinematographer
"The Great Whales" (1978)

In 1975, a young man named Jim Hudnall decided to try to make personal contact with one of earth's largest, most intelligent and least understood societies: The humpback whales. Once again, National Geographic was there.

For Hudnall, filmmaking was just incidental to the scientific research he was trying to do, although when he was twelve he had tried to make an underwater housing for his Brownie. He was trained as a marine geologist and described himself in an understated fashion as a water person. His first whale project was his 1975 attempt to swim peacefully and for long periods with the humpback whales off the coast of Hawaii.

"At that time nobody conceived that it would be possible to swim with any of the great whale species. The assumption was that they would leave and you would never see them. I suppose that was the assumption . . . I really don't know." But scientists are drawn to unproven assumptions like bees to a hive. Hudnall had been doing some reading and thinking. "I was influenced by John C. Lilly who was writing about the mind of the dolphin, (*Dolphins: Humans of the Sea*) and by an editor, Joan McIntyre, who was writing or compiling a book called *Mind in the Waters*. That book was composed of various educated impressions of these cetaceans and what their conscious minds might be like. So I started out operating on the supposition that whales were quite conscious beings and would probably react to my presence with curiosity rather than fear or aggression. That turned out to be exactly right."

He began documenting his experiences with still photographs. Shortly after the first of these were published, he began to get some notoriety. In 1976 he realized that he needed to record his adventures on film. He started out with a 16mm Canon Scoopic and an Ikalite underwater housing, "right off the shelf." National



Humpback whale and calf pose for Hudnall and his camera. Below: Hudnall swims peacefully with the great whales. Opposite page: David Hughes, silhouetted by the African sun.

Geographic Specials producers Nick Noxon and Jennifer Carter approached Hudnall and asked if he thought he could put together a film for them.

"At the time I was very interested in putting together a project that concentrated on the underwater behavior of humpbacks and documenting it on film. We were naturals together. (National Geographic.) They gave me free run with the

camera—shoot as much as you can—then they picked and chose from what I shot. It was an absolutely beautiful relationship."

Hudnall is good at relationships. First there were the whales, then National Geographic, and finally there was the relationship that he forged between the majestic animals and the documentary audience. "Great Whales" had a tangible effect on



Swimming in the clear waters of Hawaii, the whales glow in the filtered sunlight.

people and Hudnall has seen the results.

"In the case of the humpbacks, a very odd thing happened. When I first went out there in '74 and '75, Lahaina, the main town on Maui involved with whales, was more interested in the history of whaling. The fact the whalers called there in the old days to refurbish their ships and such was more important than the living humpbacks on their doorsteps. In fact most of the people I talked to couldn't tell me what kind of whale it was offshore that they could see leaping and blowing every day during the winter months.

"After the National Geographic film and subsequent films, the emphasis shifted entirely. Now all of Hawaii is interested in humpback whales, including the city of Lahaina. When all of this exposure on the humpbacks came, I proposed to the federal government a sanctuary for humpbacks in Hawaii. I hoped that I could somehow start the mechanism for the increased protection that the people would soon be asking for as they got to know these whales.

A funny thing happened. It got kicked around in government circles, in the U.S. Sanctuaries program and the Department of Commerce for years, and the governor of Hawaii finally formally opposed it. So a sanctuary does not exist to this day."

For Hudnall one of the greatest results of documentary filmmaking is awareness. He feels that through film the public becomes aware of the plights of different creatures, and with awareness comes the desire to help. Researchers benefit through increased grants, and so do the various non-profit organizations devoted to the preservation of the planet.

"I think that with all of the emphasis in our world today on seeking out and finding the 'statistically present alien intelligence in space,' if we spent half that money right here on our planet we would soon find that we are in the presence of a number of highly conscious species, including the whales,—thinking beings that we might be able to talk to. Every person that works with the whales in the open sea gets this feeling that

we can communicate, but nobody has any proof so there the matter sits. Till funding for that kind of research comes along there won't be any proof. It remains a grand mystery."

Hudnall's life is still centered on the dwellers in the deep, and filmmaking supports his science. The housing for the Brownie was undoubtedly a dismal failure, but today Hudnall is designing a lightweight underwater camera of his own. The equipment he uses has changed over the years, but he still uses the Canon, and his favorite camera is an Arriflex. He feels that to be an underwater cameraman today "you have to be about eighty per cent mechanic and water man and twenty per cent cameraman. There are a lot of basic things you have to look out for before you are into the aesthetics of framing and lighting."

Hudnall has moved from Maui to Northern California where he is pursuing a project on the feeding habits of the California grey whales. He often provides stock footage for film and television companies and has contributed his talents to a few features. The study of humpbacks still interests him greatly, and the work in Hawaii goes on under the auspices of a foundation he set up called the Maui Whale Research Institute.

Jim Hudnall remains very grateful to the National Geographic. "I am sure they didn't know what they were betting on at the time, but they were extremely supportive. They gave me the logistical support I needed to carry through an idea that has since been judged to be very innovative. For me it was incredibly rewarding to be able to find that in fact the whales were every bit as exciting to be with as I had thought they might be. And that their consciousness did seem to be very high, just as many writers had speculated. We have made a start."

"The film we had in mind is almost precisely the film that turned out. That is what we wanted to make. Our whole thing when we first got into films was we were pretty much motivated by a dissatisfaction with the kinds of films we were seeing. Not a total disaster, but I would always view films and think I would like to do it a different way. The different way was that we wanted to create the experience of what we were seeing."

—David Hughes,
producer/cinematographer
"Etosha: Place of Dry Water"
(1981)

David Hughes is one half of David and Carol Hughes, a British husband-and-wife team that specializes in filming wildlife: a team that will spend two years filming in the bush in Africa because sometimes it takes that long to be accepted by the animals; a team that brought an unsentimental, unromantic, gritty sort of realism to wildlife films in the 1970s; a team that feels their lives are in more jeopardy now, while they are in Los Angeles working on their new National Geographic film "African Nights," than when they are in Africa surrounded by lions.

David considers himself a filmmaker, although he has a PhD in zoology and animal behavior. Carol is equally talented as a cinematographer and still photographer. The two met at the University of Miami in Florida where David was on the faculty of the School of Marine Sciences and Carol worked for a marine publication. They were married in 1971. To an outsider, no doubt it sounds exciting to spend married life romantically ensconced in a tent taking beautiful pictures of amazing animals. Alas for reality.

The rainy season was unexpectedly heavy in the Etosha pan of Namibia, and two exhausted documentary filmmakers lay in their tent. Suddenly, they were joined in their small quarters

by bullfrogs washing through with a flood. To the unflappable Hughes' "it was no big deal."

David and Carol spent twenty-three months filming in Etosha, and eventually the bullfrogs were signed up for their own segment in the show. One gets the feeling that the two often turn disaster to discovery and that they never lose their sense of humor. Their lifestyle would demolish most relationships, and David reports that when Carol is asked why they have two vehicles out in the field she has been known to reply. "It's cheaper than getting a divorce."

Actually, the reason for two vehicles became abundantly clear when the Hughes' began to explain the painstaking process they use in order to capture on film the endless hunt for food that



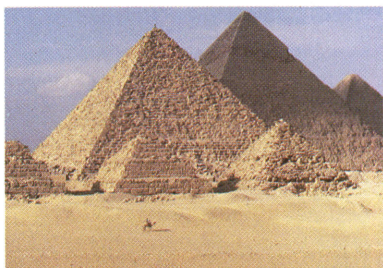
orders all life in Etosha. "You tend to go for the thing that is most difficult and most time consuming," explained Carol. "Initially anyway, that was the lions. We had set our hearts on getting very special lion material—lion kills at the water hole. And not too distant. We wanted something that came right into the viewer! Those shots took a long, long time because we had to get to know the lions. We went to the water hole



Left: From desert to navigable lake, the Hughes' captured Etosha in all its seasons. **Below:** Cinematographers David and Carol Hughes.



Above: Zebras gather to drink in the Etosha Pan. Right: The most recognizable monument to ancient Egyptians' quest for eternity.



day after day after day in two vehicles. David would stay there while I rushed back to camp to get breakfast, and then I would rush back again and get lunch, and we would eat and drink in the car. It took us eleven months before we got something we were really excited about."

David disagreed, "No. It took us eleven months before we saw the first kill and got it on camera. It was such a lousy shot anyway ..."

"Thank you very much," said Carol.

"But it was mine!" said David.

It was Carol's turn to disagree, "It was mine, on the Bolex!"

The Bolex in question had been a part of David's filmmaking from the beginning. "In 1970 we were working at the University of Miami on a research project in Costa Rica, trying to find out what factors made certain beaches attractive to Ridley's turtles. On a flight over the beaches

with my colleague, we found a couple of beaches with a tremendous number of turtles on them. As a result we got a research grant from the National Geographic and went down to the beach to study the turtles. I took my old wind-up Bolex down there and we shot some footage as well as stills. When we left the beach we sent the footage to the BBC.

"They were very excited by it. It *was* an incredible phenomenon—literally 110,000 turtles came up in three days, and it was a *short* beach. They were climbing all over each other and digging up each other's eggs. It was a spectacular thing. That was our foot in the door. The BBC said, 'Go back and make a film for us. This isn't really quite it, go back and try and do it right.' So when we went back we took 3000 foot of film ... and the wind-up Bolex."

The venerable Bolex was finally demoted from first unit to second unit. For "Etosha" it also served as the stunt camera. In one sequence, an elephant rumbled down the path toward the water hole. The angle was very low—ground level, in fact—and the elephant walked to within inches of the lens. Consequently the shot conveyed his enormous size very dramatically. David left the old

Bolex clicking away on the elephant path. Recalled Carol, "We didn't know how the elephant was going to react to that. Was he going to kick it in the mud?"

"The next one that came along stopped just at the camera, doubled back and went off the side of the path. He was not going to pass that noisy thing," David added.

"They are extremely sensitive to anything like that," said Carol. Bless the Bolex.

In "Etosha," the Hughes' used a variety of equipment and had a philosophy of being prepared for anything. David and Carol preferred to use a tripod and usually relied on a 300mm Canon f2.8 on their English ACL camera. It wasn't necessarily a step up from the Bolex, but as David says, "It never let us down once we knew its idiosyncrasies." They added a 2x converter to the Canon lens to get 600mm. The rest of the time they used a 200mm Canon, a 10-to-1 zoom lens and the occasional wide-angle lens. Most of the lion kills were done with the 10-to-1, which indicates just how close they were.

The "Etosha" production marked a turning point in wildlife documentaries, and the Hughes' were well aware of it. In a press release issued just prior to the scheduling of the film David acknowledged that whereas some "wildlife films are made to suit the sensibilities of the average urban viewer," this one would be different. Since it included some astonishing footage of a cheetah bringing down a springbok, the birth of a wildebeest, turtles attacking a dove from below the surface of a lake and frogs cannibalizing each other, David described it as "the experience of being in such places, but as close to the animals' viewpoint as possible."

The shot of the cheetah's struggle to bring down her prey was especially impressive. How did they keep her in focus? The Hughes responded in unison with a resounding, "We didn't!"

David explained, “We were shooting at 300 fps with a Photo-sonics Action Master. It was a shot we were preparing for all the time. We always wanted one of them running toward camera. To get it we lived with these cheetahs. Always trying to see what they were seeing. We would find what they were looking at and then we would maneuver around to the other side of their prey and wait there—always hoping for the run towards the camera.

“Then when it happened, it happened so fast we had no time to prepare the movements and things. The cheetah just came out of the bush and was on us. Most of the shot that *isn't* in the film is out of focus. Some of what *is* in the film is out of focus.”

“You just don’t know what you’ve got,” added Carol. “She came at us so fast . . . but we love that shot, too. It’s like she is swimming through the air, isn’t it?”

A cheetah swimming through air was only one of the amazing sights that David and Carol Hughes brought to the public in “Etosha.” Some of what they recorded had never been seen by zoologists or ethologists before. For some filmmakers, the opportunity to blaze such scientific trails is a big motivation. But when asked why he makes documentaries, David had no such clear answer. “This whole thing about why one really does something is so difficult. I don’t think people ever really understand their motivations for doing things. You always have fine words to describe it, like, ‘I want to communicate!’ but . . .”

Carol was more expressive about the matter. “If you spend so many hours, days, weeks, months with an animal you are naturally going to learn more about it. You want to show what you have seen; that is a human instinct almost. ‘I have seen this fantastic thing! Come and look at it!’”



Ramesses II, Egypt's greatest builder.

“I had a dual career as a writer and as an actress/singer. From the writing I began to produce. Then I came to a fork in the road. I decided that the documentary was a much more gratifying place to be. I have been really thrilled with my decision. I still enjoy singing, but I don’t miss the other. I like what I do. Everybody that does this likes what they do.”

—Miriam Birch,
producer/writer
“Egypt: Quest for Eternity”
(1982)

Miriam Birch produces and writes National Geographic specials. “Egypt, Quest for Eternity” was her second. It began, as they all do, with books—a congenial medium for the summa cum

laude graduate of the University of California. “Of course with a thing like Egypt it is a rather terrifying prospect, because people have been writing about Egypt since before Christ. There is lots and lots to read. At first you just saturate yourself in the subject and try not to take too much of a point of view. You just keep taking in and taking in.

“With ‘Egypt’ and with all the shows I have done for the National Geographic, at some point I usually contact the government. I talk to people and try to get a feel for what *might* be. Then I start to form a concept about what I’m interested in. In the case of the Egypt show, we did not have a specific direction at first. I did a great deal of preliminary research and then I took the research trip. And it was on the research trip that the concept of



Above: Director of photography Norris Brock sets up shot for producer Miriam Birch. **Right:** Birch in her office at WQED/West, Los Angeles.



what to zero in on and how to create the spine of the show developed.”

Birch chose Ramses II, Egypt’s most renowned monument builder, as the focus. Through the ruins of his magnificent structures, she hoped to tell the story of ancient Egyptian life and beliefs. She found unsought help in bringing that story to life when she met the remarkable Omm Seti on her research trip. Dorothy Eady was an English-woman who felt she belonged in Egypt. For 20 years she had worked for the Department of Antiquities restoring the temple of Seti I at Abydos, one small piece at a time. She came to be called Omm Seti (the “mother of Seti”) after she insisted on giving her newborn son the name of the pharaoh. Her encounter with Birch and crew had a timeliness neither suspected.

“She was a completely extraordinary woman,” recalled Birch. “She said that the reason she knew how to put the temple

together was that she remembered how it was supposed to look. She told me she had been a priestess in the temple at Abydos.” The archaeologists involved with projects at Abydos could not accept Omm Seti’s claim, but neither could they refute her expertise in Egyptology. She was loved and respected, and Birch felt privileged to walk with her through the temple, talk to her and even attend her birthday party.

Omm Seti’s simple acceptance of her place in Egyptian history gave Birch a bridge between the ancient and the modern. It was the extra dimension that every documentarist looks for, wishes for. Three days after Birch and cameraman Norris Brock filmed the interview with her, Omm Seti died. Like the pharaoh whose temple she had helped rebuild, she believed that to speak of the dead made them live again. In an odd sort of way Birch’s documentary assured Dorothy Eady’s immortality.

Moments like those Birch spent with Omm Seti represent the epiphanies of documentary filmmaking. But before one can see the light, often she must labor in darkness. It is rare that a documentarist has the privilege of seeing dailies. Sometimes there are bi-monthlies, occasionally weeklies. The filmmaker must depend on the people who do see the film, albeit in the comfort of air-condi-

tioned offices in Los Angeles. One of the worst and most frustrating messages a documentary crew can receive is, “There’s something wrong with your film.”

“Just as we were beginning to wrap up our Egypt shoot we got a call from L.A. Something was wrong. They couldn’t tell me *what!* The film looked grainy. I wanted to scream, ‘*What is wrong?*’”

The crew was in Luxor at the time, and there was only one phone in Luxor from which you could dial international phone calls. The operator was only on duty certain hours and those hours did not necessarily coincide with Los Angeles business hours. “When you wanted to place a call—this is true—there was one phone that had wire wrapped with tape. One phone and one crummy wire,” laughed Birch. “It was in this big open space with no privacy and there were all these other people waiting around to make phone calls. There were people trying to call their girl friends, people trying to get stories out, people wiring home for money. In the midst of all this, I was yelling into the phone, ‘What do you mean *grainy?* What’s wrong?’ It was madness.

“The second big problem was that it was the height of the tourist season and there were no more rooms in Luxor. Egypt has more tourists than they do hotel rooms at certain times of the year. The hotels overbook and people have terrible experiences getting to them. Even though we had been in and out of this hotel for weeks, the fact that we were in did not matter. So I finally said, ‘We can’t stay here any longer. I am taking the crew back to Cairo where at least we can talk on the phone.’ The upshot of it all was that we had to remain in Egypt and reshoot a lot of material. We ended up being on location for three months, which is an awful long time.”

How did Birch document a people in their own land? She did not rely entirely on chance. Birch explained, “Sometimes if you see

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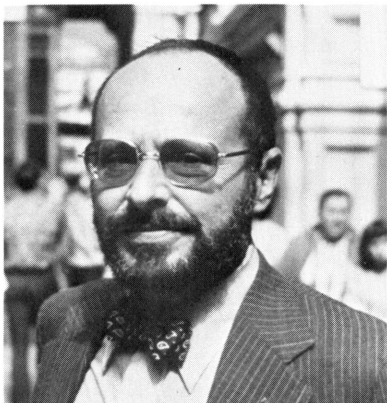
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Above: Dorothy Eady pieced together the ruins of Seti's temple "from memory." Right: Irwin Rosten, producer and writer.



somebody in the field with their oxen you just start shooting, and if they don't object, you just keep shooting. If you have seen them go from A to B with their oxen, and now they are at B and you want them to do it again—maybe you missed or you want to get a better angle—then you go over and say 'Excuse me sir, would you do it?' Oftentimes people are very helpful and willing. Other times they say no. Sometimes they want money and then you negotiate on the spot. Sometimes you start to film and they give the evil eye . . .

"For a lifestyle show, on the other hand, let's take Omm Seti as an example. We knew that she went to the temple a lot. But when we got to Abydos she wasn't planning to go at all because she was somewhat crippled. I asked her if she was willing and she said yes. My crew took her on a chair

and carried her to the temple. I asked her to walk here and look there. Then I asked her some questions and the responses were what you saw in the film.

"So sometimes you are really getting life as it happens, and sometimes you are asking people to recreate what they really do. You can't always be there at just *the* moment, so you have to ask them to do it again. The criterion that we use in trying to make it real or authentic is to have people do the things that they normally do. Nobody is ever willing to do things they don't normally do. You never get anything that is unnatural or contrary to what people believe because they simply don't want to do it. Of course, you wouldn't want to ask them, either."

Birch is currently in post-production on a documentary for the National Geographic on Jerusalem as a holy city for Jews, Christians, Muslims, and Armenians. She believes she has found her niche and she is very articulate on the subject of why she does what she does:

"You have to have your audience in mind because you want to captivate them and you want to entertain them and you want to inform them. But I make films very much for myself, too, because the subjects that I deal with have an importance. They are not just a way of passing the time. They are a way of showing people what is—and the beauty of what is. They are helping people to enjoy the pleasure of reality."

"I am basically a reporter and I have been all my life. I started in the newspaper, then radio, television, film and video tape. The idea has always been the same—to report."

—Irwin Rosten,
writer/producer
National Geographic Specials

Rosten, like Birch, is not a cameraman. But it is very hard to talk about the history of National

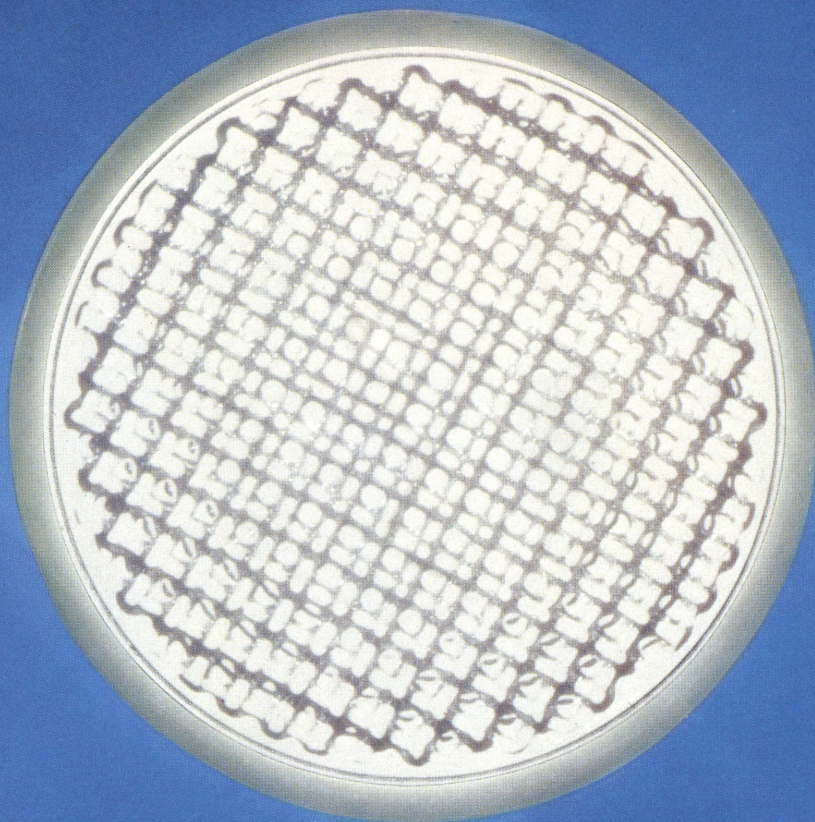
Geographic Specials without talking to him. He has been a producer and a writer of documentary films since "somewhere around 1955." He hasn't become rich and only mildly famous. He makes documentaries because, he says, "It must be obvious, I enjoy it! The beautiful part of what we do is we get paid to get an education. I had no idea, for example, that I would live out in the woods and chase grizzly bears and other wild creatures, until I had the assignment to do it."

Rosten knows and has worked with most of the best documentary cameraman around and he knows what qualities to look for. For him, "It all begins with reading. Read, read, read. And that is one sign of a good cinematographer. The first thing he says when you start an assignment is, 'Give me some books. What can I read about it? What can I learn?' Then when you go out in the field, instead of having an artist for his daily rate, you have someone who is as involved in the project as everybody else is. He spent the intervening weeks learning everything he could. Those are the good ones . . .

"There are no stars in a documentary. If there is a star, of course, it is the photography. Someone like David Hughes and some of the other wildlife people who can live out in the bush on their own for years at a time—they star in their films (even though no human face ever appears on camera). On other films, it is a team effort. You are shooting in a largely uncontrolled situation, so as a director there is not much you can do except try to make things happen. You very rarely have the opportunity to set it up the way you want it and have the action happen the way you want it.

"You are dealing with people who are not actors and you don't want them to be actors. You are trying to get people to behave as normally as a person can when you have invaded his home, his camp or his campus. You are in the cameraman's hands. Often the cameraman has to go out without

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the producer/director, sometimes without a sound man because there is no space. Or maybe the subject is such that just one additional person will spook the animal or affect the experiment. So you need people, as cameramen, who can do all these things on their own. Norris Brock went on two voyages from Hawaii to Tahiti on a raft and he had to run camera and sound while living in a space about the size of a coffee table. He was all alone."

Cinematography is not the only high risk in documentary filmmaking. Budgeting a documentary can take an equal amount of courage. According to Rosten, the producer has to figure a shooting ratio of at least 20:1, and that changes depending on the subject matter. Experience is the best guide—experience and a large contingency. Documentary budgets are finite things. Running out of money may mean coming home and making do with what is in the can. Any number of things can happen, from bad weather to political unrest. And if the team is kidnapped, as André Gunn and his crew once were, then the budget means nothing.

Rosten continues, "And then there is the editor. A good editor is the unsung hero of the film. A good example is 'The Volga.' We came back and started running dailies with editor David Saxon. I could remember the excitement, the frustration, the joy, the heartache of shooting the thing. All David saw was what was on the screen. That is why you need a good tough editor. At one point, we had shot an entire sequence with a medical student. And David said, 'You don't like her and she doesn't like you.' 'David, how can you tell that just from what is here?' The woman did not speak English nor did David understand Russian. 'It's there. Believe me. You are uncomfortable. She is uncomfortable. You just didn't get along.' He was right. We didn't use any of the sequence. It just didn't work. This is what a good editor can do for you.



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Barry Nye has been an editor of the specials for ten years. In that time he has contributed his talents to probably half the films made by the Society. His responsibilities are legion, and begin with the first set of dailies that come in from the field. He must give some indication to the team in the field of how things are going. Then through the years it may take to film a story, he helps keep the photography on course. According to Nye, "As an editor you tend to temper your comments based on what the production team is going through. I simply try to say something that will help and give them some perspective. They may be very close to the work they are doing because they are working so hard. If things look good we say, 'Everything's great, keep going and look out for crocodiles.'"

When all the shots are in and the time comes to put the film together, Nye and his associates view an average of 75,000 to 80,000 feet of film. The editor

must pick up on shots he saw ten days ago and fit them in with things he is seeing today. He must be a sort of conceptual artist who molds and shapes the film. It is the editor who insures that the best story is told.

Sometimes it seems that everyone involved in the documentary film process is an unsung hero. Few groups tackle their work with the same passion, dedication and courage. Few turn out fine products of such undeniable value, and yet realistically, there is hardly any market for their product. "It is disappointing that television is the only major outlet for documentaries," comments Rosten. "I am disappointed because there is no direct box office for what I do. Everything is dependent on someone else. The commercial networks won't touch anything, or they wouldn't for the longest time. PBS represents the only real marketplace, so we are limited. HBO is starting to do some now.

"Most of us, myself included, have always been arrogant

enough to think that there ought to be a million people somewhere in the United States willing to pay a couple of bucks to see one of our films. That is all we would need. But it doesn't happen. And the thrill of working on the big screen, to see a picture 35 feet across, to shoot in 35mm and see the difference in quality is denied us.

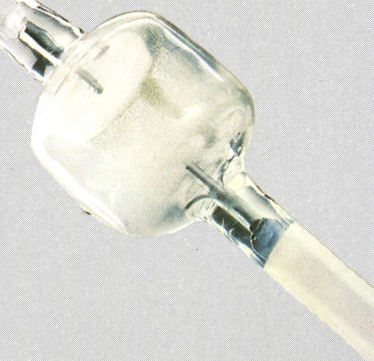
"It's hard to tell; does the American public not care? Are they unresponsive? Or have documentaries never been properly marketed? I don't know the answers to these things. So yeah, we hope that somebody, someday will make a documentary that somebody will pay to see and the studio execs will say 'Hey, we ought to do that!'" △

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THE ADVENTURES OF
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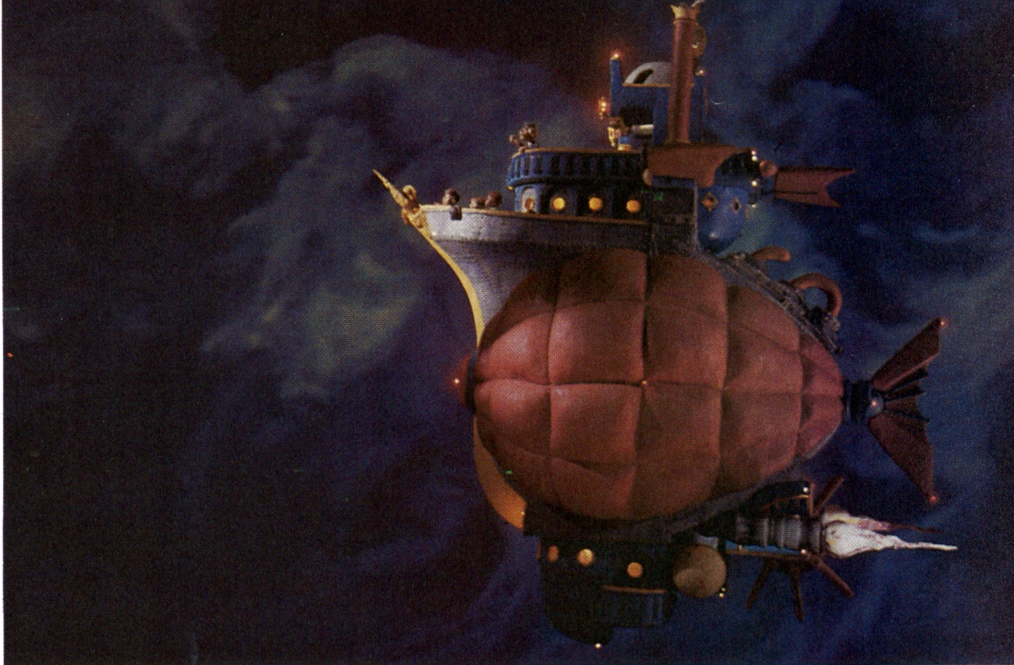
"I'm sorry," wrote Mark Twain, "to have my name mentioned as one of the great authors, because they have a sad habit of dying off. Chaucer is dead, Spencer is dead, so is Milton, so is Shakespeare, and I'm not feeling very well myself."

One hundred-fifty years after his birth, Mark Twain has returned to earth in yet another dramatic incarnation. Not only is Twain making the return trip, but also many of his best-loved characters, illuminated by the flickering light of Halley's Comet. This year, while the comet will be scattering cosmic debris among the heavens, Mark Twain will appear in the first feature-length Claymation® film, *The Adventures of Mark Twain* by Huck Finn.

Twain managed to stay alive, however, until 1910. His works have enjoyed considerably greater longevity. His characters have been portrayed in many feature films, and Twain, himself, has been the subject of dramatic works in many media. From the 1921 version of *A Yankee at the Court of King Arthur*, to the Reader's Digest production of *The Adventures of Huckleberry Finn*, in 1974, the work of Mark Twain has been used as the basis of many films. Twain has been portrayed in such films as, *Mark Twain Gives an Interview*, a 1961 Coronet production, with Hal Holbrook in the titular role and *The International Film Bureau's* 1950 work, *Mark Twain and Tom Sawyer*. But not until 1985 has he been portrayed in plasticine.

The man behind this unique portrayal of Twain is 38-year-old Will Vinton, of Portland, Oregon. Vinton's career has been marked by an Academy Award in 1974 for *Closed Mondays*. He received Oscar nominations for *Rip Van Winkle*, in 1978; *The Creation*, in 1981; and *The Great Gatsby*, in 1982.

Will Vinton was born and raised in McMinnville, Oregon, an affluent suburb of Portland. He attended the University of California at Berkeley,



Twain's airship. Clouds in background are front-projected "clay paintings" by Joan Gratz. Center: Animator Craig Bartlett works on Twain. Below: Twain, himself.





Above: Animator Bill Fierstman works on the airship and crowd scene. Center: Bartlett at work. Below: Vinton sets up a shot.



where he studied physics. After becoming disenchanted with the hard world of science, he turned his attention to filmmaking, and the study of architecture. He made a number of films while in college, winning his first award for the short film *Culture Shock*. His early works were live action. And then ... he discovered clay. He began to experiment, and found the results very satisfying.

"For the first phase of my work, my dad always wanted me to quit filmmaking and get a job," remembers Vinton, "That's pretty typical of parents. And then I won an Academy Award and he said, 'Well, maybe there's something to this.'"

Vinton's wife, *Twain* writer Susan Shadburne, has been busy directing a live-action feature film, *Shadowplay*. "It's great working with her," confides Vinton, "But I don't work WITH her. We work separately for our own peace of mind and our relationship. She's just so talented that it's really fun to see her stuff."

Vinton and the small, young crew of Will Vinton Productions make their home in rain-soaked Portland, Oregon by choice.

"I like the freedom of being an independent filmmaker," says Vinton, whose early influences include the works of Jean-Luc Godard, Francois Truffaut and Norman McClaren. "One of the things that you do on a picture like *Return to OZ*, is spend half your time finding out who does what. And it takes a long time, and some mistakes are made before you know what people can do, as opposed to what they say they can do." This doesn't seem to be a problem with Will's crew, some of whom have been with him since 1976.

"Barry Bruce and Joan Gratz have been working with me longer than anyone else," says Vinton, "They worked on *Martin The Cobbler*. I like to think of our production company as an extended family. It's really a good group."

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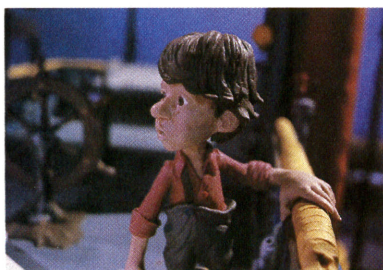
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Above: Animator Mark Gustafson prepares an armature. **Below:** Huck Finn at rail of the airship.



The process of Claymation is a simple one. It is a variation of stop-motion animation. Clay characters, about eight inches tall, are photographed one frame at a time, in front of a miniature background. The characters are then moved a tiny amount, by the animators. Another frame is taken, and so on, until the scene is finished. The process is a long and tedious one, but the results are fascinating. On a good day the studio will finish 240 frames of film, or a full ten seconds. Claymation has developed over the years to a very refined process.

The first stage in making a Claymation film is finding a suitable script. The script of *The Adventures of Mark Twain* was written by Susan Shadburne, with additional material by Dan and Mary Yost.

"When we begin character work," explains Barry Bruce, "one of the first stages we go through is a kind of sketch stage, where we do a lot of drawings, thinking about the characters, slowly trying to settle into a general framework of what we want the characters to look like." After

the initial drawings have been done and approved, a prototype of the character is built in clay. It is in this stage that the animators eliminate problems that may not have been apparent in the two-dimensional character drawings. After the prototype has been built in clay, the armatures for the production characters are begun. These metal structures roughly correspond to a skeletal system within the character. Bruce oversees the design of most armatures. The armatures will allow the animators to move the eight-inch characters in a smooth and convincing manner.

"We have consciously tried to refine our characters over the years," says Vinton, "refining their movement and expression. We've gone through a lot of different armatures. We went from crummy wire armatures to sophisticated nylon-and-steel ball-and-socket armatures, back to very sophisticated wire armatures. What we have now is a plug-in type, of brass and lead."

"It's a new armaturing technique," Bruce explains further, "that we began using on this production, which involves lead (wire) for the elements that have to bend, and brass connections for those elements. This system is screwed together with set-screws, so that we can remove and replace any one of the portions individually; either after a scene is finished and we realize that the arm or leg is wearing out, or actually in the middle of the scene."

As they looked at the hundreds of storyboards for *The Adventures of Mark Twain*, the animators became aware of an interesting fact. About 80% of all the shots were medium close-ups of the characters. With this bit of news, one of the animator's biggest problems was solved. In previous films, when a majority of the scenes were long shots, the characters tended to gradually tip over during the long hours of filming. This was due to the design of the characters, which tends to be top-heavy. This problem was solved on

Twain by building half-body armatures, with heavy steel bases. Suitable jointing allowed animation of the upper body, while giving the illusion of below-the-waist movement. The characters could have very realistic movement and great stability.

The raw modeling clay Will uses is purchased right off the shelf. It is then melted, colored, and molded to suit the needs of the particular production. Color charts, with notes on base colors and additives, hang on the walls of the studio as handy guides. They are a real necessity, as character color must remain consistent throughout the film. From the first frame of Becky's brown hair to the finish of the film, some 90 minutes later, animator Bill Fiester was responsible for her color consistency. And that mere 90 minutes took over three and a half years to complete. A great amount of the clay is recycled. The mountains and large trees that are shown on the screen may internally be made of old, worn-out Twains and Hucks. More than two tons of plasticine was used on *The Adventures of Mark Twain*. Most of the clay comes from a bulk supplier in California, though some comes from as far away as Florence, Italy.

The tools used to work the surface of the clay are ordinary sculpting tools, with subtle modifications made by each animator. Tools alone are used in the sculpting of the surface. Fingers are never used, as the fingerprints left behind belie the actual size of the characters and scenery. Other than the plastic beads used for character eyes, Vinton shuns the use of non-clay objects in his work. When he needs a tree, instead of finding a real tree or branch, he has a tree designed and sculpted in clay. This leads to a certain integrity of style, and consistency of appearance that is very important to Claymation. The animators do add things to the clay to give it a special texture. It is standard for the crew to add broken walnut shells and sand to give the clay a texture and "real" quality, as opposed to



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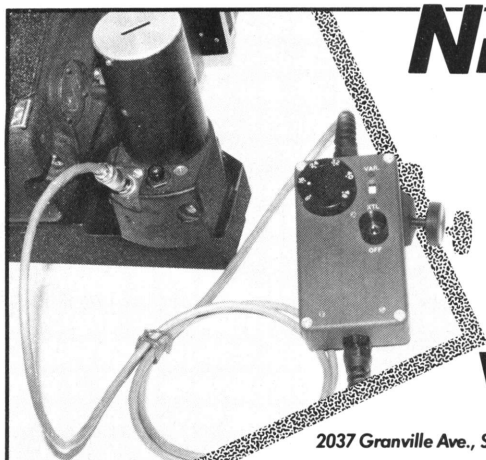
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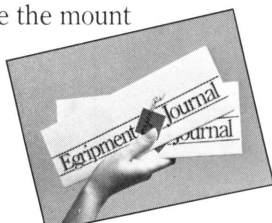
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what Vinton refers to as "clay pudding".

In addition to the technical advancements for armatures and bases, other time-saving methods have been developed. The only criteria for improvement is that it must always improve the look of the final work. One of the areas that is most affected is the production of the characters themselves. Since the characters can take only so much bending and twisting and repair during production, a reliable method of mass production was necessary. It is not a new method, but in the world of Claymation it was a breakthrough.

"We began casting most of our heads in rubber molds," recalls Bruce, "The clay is poured in around a wooden bead, and then the head itself can be plugged into the character. We've also developed a technique for casting molds with two colors so that we can do both the hair and the flesh color at the same time. I would guess that in a production of this kind, we must have cast, and used, 100 to 150 heads for the main characters."

Another technique utilized is replacement animation. In "The Celebrated Jumping Frog of Calaveras County" segment, the main characters are Jim Smiley and The Stranger, played to the hilt in the reference film by Oregon actors Dallas McKennon and Herb Smith. The two old miners have enormous flapping moustaches. In the final stage of their character development, it became obvious that they would require a slightly different animation technique. "As we began to work with them," remembers Barry Bruce, "We realized that with these gigantic moustaches all we really had to do was to move the moustache, which we did by a combination of replacement moustaches, (different moustaches that would stick on in place of the preceding one), and switching the moustache around a little bit. Those two techniques in combination gave us a fairly odd, but believable effect for the lip sync."

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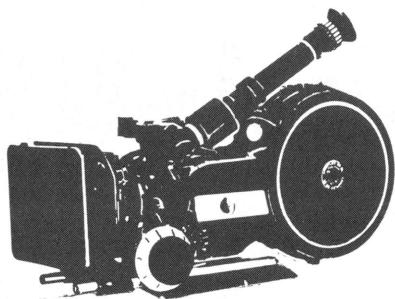
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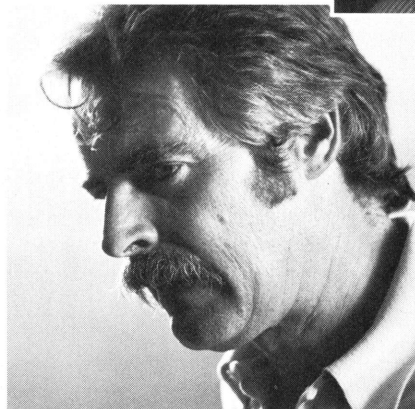
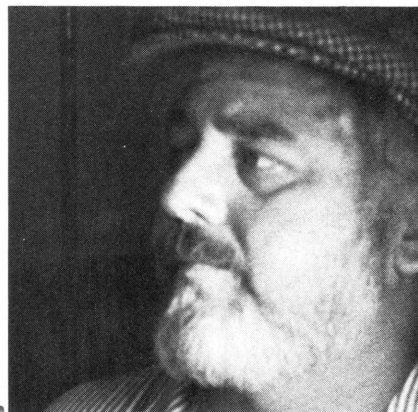


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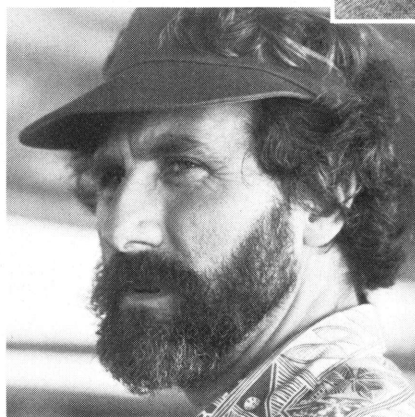
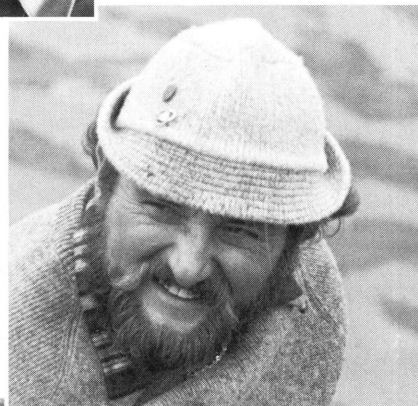
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After the clay characters have been refined and finally approved, the entire script is meticulously storyboarded. There is a great deal of attention paid to character continuity. Since a film like *The Adventures of Mark Twain* can take upwards of three and a half years from first frame to last, the characters tend to evolve during the production. This is partially due to simply forgetting what the character looked like to begin with, and the refinement of the animator's skills over the years. To prevent this evolution, the animators are given two or three throw-away scenes at the beginning of the production, to get them warmed up for the years ahead. By the time these scenes are finished, the character's personality is pretty well-defined.

After the script has been storyboarded, the entire story is filmed. In the case of *The Adventures of Mark Twain*, a 16mm sync-sound (the sound is actually used) reference film was shot in a recording studio, edited and then blown up to 35mm. Having a complete reference film means that sound effects and music can be added and altered at all stages of the production.

Vinton is director of photography, (as well as producer, director, editor, and animator), on the reference film and the final 35mm version. He lights the sets, and sets up all of the camera angles. As the reference film is logged for each scene, careful descriptions of the set-ups and lighting are taken. With these logs as a guide, each animator photographs his own work.

Some considerations of shooting Claymation are the same as standard miniature photography. Lens aperture and the resultant depth-of-field, for example, are chosen to make the small characters and sets look larger. "We like to use f 5.6 to f 11, if we can," notes Vinton, "we just can't use wide open lenses, because we need the depth of field in order to make the miniatures work."

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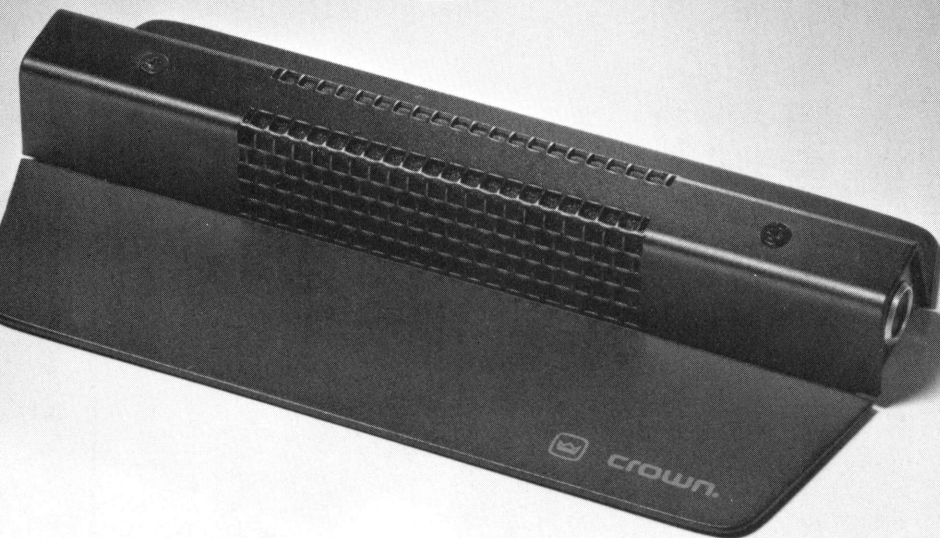
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Other Claymation photography requirements are unique, and affect all subsequent production decisions. For example, clay melts under hot lights, so low-intensity lamps are a necessity. This means that a long exposure time is needed for each frame, and practical set lights must be balanced with the low-level stage light.

The choice of a proper frame aspect ratio is affected by the labor intensive nature of Claymation, as well. Vinton would prefer to shoot 1.33 to 1 for the eventual transfer to video tape, but Claymation presents a unique snag. Unlike conventional live-action filmmaking, everything in the frame has to be created. Unless the animators create it, and put it before the camera, it doesn't exist. So, creating a tall clay set, (to fill a tall frame), requires a lot more work - and a whole lot more clay. Because of this, the decision was made to shoot 1.85 to 1, and settle for a scan of the image for the video transfer.

The cameras used on *The Adventures of Mark Twain* are all 35mm Mitchell hi-speeds, driven by J-K Camera Engineering stop-motion motors and controllers. They have been modified to accept Nikkor still-camera lenses. Most are standard rackover cameras, but some have been converted for reflex viewing by Fries Engineering of North Hollywood.

"We have ten (cameras)," says Vinton proudly, "We have three with the Fries conversions, for the video tap, mainly. We can see on the (video) monitor what the camera is seeing," explains Barry Bruce, "This helps us to compose the scenes as we are animating. It allows us to use the video monitor as a registration screen; so that we can look at the position of the character on the monitor, trace his position with a pen, and when the characters move we can see how much of a move the camera has seen. If we leave the marks on the monitor as we progress, we can actually see the acceleration and deceleration of the move." Acceleration and



deceleration of character and camera are an important part of stop-motion animation. The demands of character animation require the animator to remember position and action, design character movement, and think ahead several frames – all at once – to properly determine how the animation will appear on screen. It is hard work, mentally and physically demanding. Coupled with similar gymnastics to move the camera the proper amount at the proper time, it becomes very hard indeed.

When production on *Twain* began, Vinton realized the need to automate many of the repetitive aspects of stop-motion photography, in order to be assured completion of the many shots required by his full length feature film. Sam Longoria, a filmmaker in Washington State, had addressed the same problem for his own films, by building an eight-axis motion control system, around an inexpensive Radio Shack personal computer. While purchasing two Mitchell cameras, Will visited Longoria's studio, and invited him to Portland to discuss Vinton's requirements. Longoria was commissioned to design and build a computer assisted stop-motion system, write the necessary software for it, and design and build a front-projection process projector/camera rig.

Longoria's task was complicated almost immediately. Radio Shack discontinued the particular model of computer around which the system was designed. There was no technical information available for the new model which Vinton had already purchased. This made Longoria's design and software obsolete, and required a lot more work. Many weeks were spent just trying to decipher the new computer's internal wiring. A new interface had to be built, and new software written. Then, everything had to be fitted together, to properly match the motor-drivers to the equipment being driven. "I thought I had been brought in to do electronics," recalls Longoria, "But



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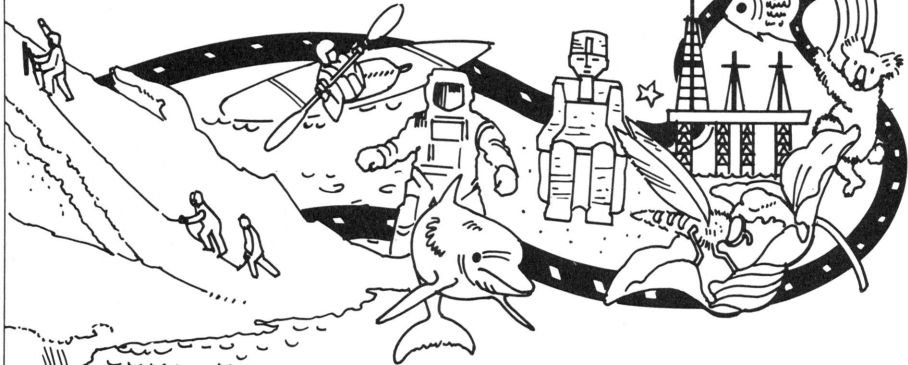
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my job tripled in size by default. Will has been doing animation for a long time, and he was used to doing it all by hand, with no motors. All of his earlier equipment was built out of wood, using soap as a lubricant. They built some metal track, for the 'computer project,' but it had bad bearings and wasn't geared or counter-balanced. Now they have the machinery and the know-how, but at the time we were all just learning. They wanted my little stepper motors to brute-force everything around. To properly motorize something, it has to be counter-balanced and have good bearings. I helped them do that, and did what I had to, to make the system work."

The system's hardware is a computer-controlled set of motor drivers, issuing commands to motors of specialized camera rigs. It is designed for stop-motion photography, although blur can be introduced during shooting. It incrementally moves cameras or lenses or background elements, between frames. It has discrete relay outputs, for outboard stop-motion camera motors and lights.

"The stop-motion system has the option of shooting one frame with one set of lights," explains Longoria, "And then it switches which lights are on and which are off, to generate a silhouette matte (for alternate frame, front-lit/back-lit filming)." The software is menu-driven, for ease of use. The options available to the operator are displayed on the screen, at every step. The program calculates moves, from keyboard input. All shot information can be printed out, or stored on tape.

With the addition of the computerized system, Vinton felt free to shoot his reference film with fluid camera movements, knowing that these moves could now be repeated during animation. These visual references are crucial to the finished film. For Mark Twain, actor James Whitmore was used as both a visual reference and the final voice. The dialogue, recorded concurrently

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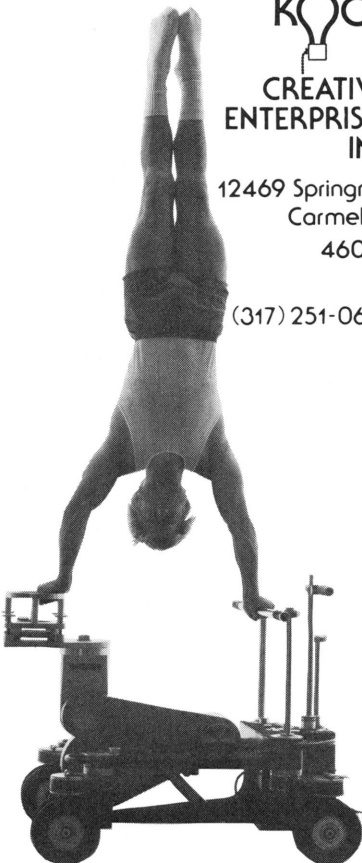
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with the reference film, was edited and sound effects added. The music, composed and arranged by Billy Scream, was scored to the reference film. As segments of finished clay animation were finished they were dropped into the 35mm reference film, until only the animation remained.

The Adventures of Mark Twain was designed as a series of short film segments based on some of Mark Twain's best known work. Once the stories were selected a wrap-around piece was written to bring all of the action together into a coherent whole. Among the stories selected were "Capt. Stormfield's Trip to Heaven", "The Diary of Adam and Eve", "The Mysterious Stranger", "The Adventures of Tom Sawyer" and "The Million Pound Note". The last of these was eventually dropped.

For the shooting of the reference film the animators sometimes play the characters they will eventually animate. It doesn't take long to notice that the characters take on their creators' looks and temperaments. "With the additional people that we have," explains Bruce, "we realized that we had potential for assigning particular characters to particular people so that the character of the animator would begin to come through. It's not exactly a new idea, Disney did it with quite a few of his main characters. It also solves some of our continuity problems."

Adds Vinton, "We very consciously made just one person responsible for each character that fitted his own personality. Naturally Mark Gustafson did Huck Finn, because Mark is a Huck Finn type who sits around and snarls, just as Huck does." (One wonders what that means about animator Craig Bartlett, who played and animated the blue, three-headed alien for the "Capt. Stormfield's Trip to Heaven" segment.)

Joan Gratz, who was responsible for the visual images of *The Creation*, a 1981 Vinton Oscar nominee, has created her own



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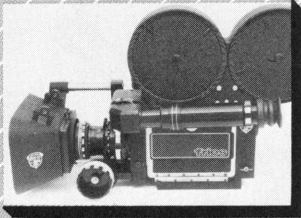
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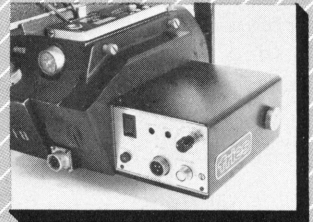
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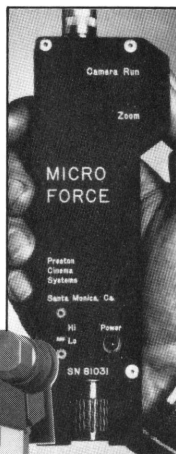
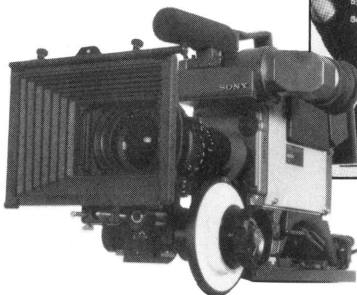
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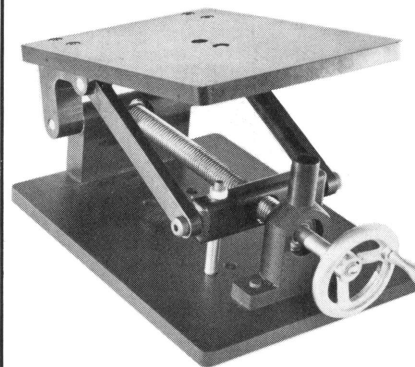
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very distinct style of clay animation. She uses clay to "paint" onto plexiglass. This clay painting creates a very fluid type of movement that Will used for the skies and backgrounds of *Twain*. Gratz was also responsible for set design, along with Don Merkt, and for the comet which changes from a huge ball of fire into the likeness of Mark Twain blazing through the sky.

Claymation is unique in many ways. It uses the clay medium to translate movement into expression. One of the areas that has been developed by Will Vinton Productions very effectively is the use of "metamorphising," when a character, or part of a character evolves into something new. (This technique was a major reason for Vinton's team being hired to do effects for *Return to Oz*, in which Nicol Williamson appears to metamorphose from pure rock into the character of The Nome king.)

Another effective use of the Claymation technique can be seen in the "Mysterious Stranger" segment. The Mysterious Stranger is an enigma. It's voice is a combination of the voices of Vinton and actress Michele Mariana. It is neither male or female, good or evil. It is absolutely frightening.

The Adventures of Mark Twain contains a wrap-around story of Mark Twain's fictitious airship trip to meet Halley's Comet. The airship was animated by Bruce McKean to seem like a cross between a Mississippi riverboat and a hot-air balloon. Huck Finn, Tom Sawyer and Becky Thatcher have come to St. Louis to meet the great man and decide to stow away for a wonderful adventure. The structure of the film allows for the presentation of several of Twain's short works. As Twain, his ship and the stow-aways progress toward the comet we are introduced to The Index-o-vator. Animator Tom Gasek, whose main characters were Tom Sawyer and Dan'l Webster, was responsible for The Index-o-vator,

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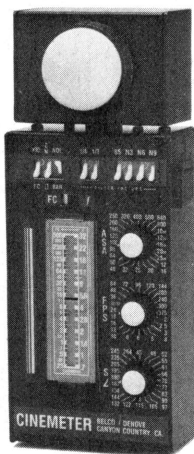
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which serves as a combination elevator and space-warp. A character boards The Index-o-vator and selects a story title. In the blink of an eye we are confronted by Injun Joe or Aunt Polly.

To create a sense of movement and turmoil for storm and chase sequences, Vinton used a great deal of process photography. Most of these shots were accomplished on a front-screen projection system. The remaining composite work was sent to Los Angeles.

"We were happy with the opticals done with Lookout Mountain Films, and Pat O'Neill," recalls Vinton, "The only optical shots we did were very complex ones, because the ones that were simple we did with our front-screen projector and there were about 225 to 230 of those. If we had done all of those in opticals, it would have really cost a lot more. The opticals were generally (photographed) front-lit/ back-lit, to generate a matte."

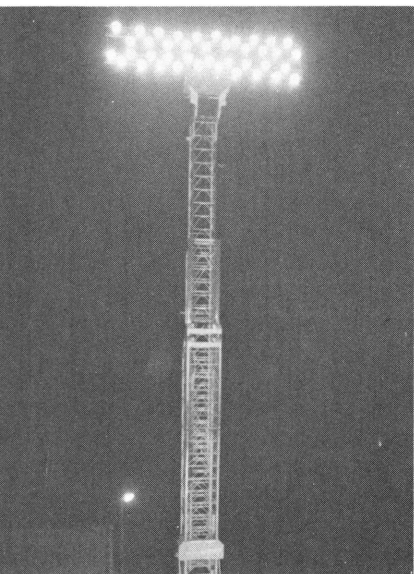
It is very apparent, when talking with Will Vinton, that this is no man who waits for something to happen to him. He is presently hard at work on a live-action and Claymation rock video for John Fogerty called *Vanz Kant Danz*.

Meanwhile Vinton's mind is concerned with *The Adventures of Mark Twain*. Will audiences accept a plasticine Mark Twain? Will Vinton, Hugh Tirrell and a small, hardworking group of Portland animators are betting more than three and a half years of their lives that they will. Δ

Barbara Vetter is a writer, photographer, and filmmaker. She is currently producing an independent feature film.

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Photos by Peter Sorel

The Honesty of *Twice in a Lifetime*

by Cathy Main

Bud Yorkin's inspiration to produce and direct *Twice in a Lifetime*: "It was the first script I had ever read that truly dealt with the American family of the 80's—very honestly, very poignantly. I was deeply touched by the story." After securing \$8 million for the production budget and Gene Hackman to star as the central character, the production began to breathe life. Shortly thereafter Yorkin signed Ann-Margret, Ellen Burstyn, Amy Madigan, Ally Sheedy, and Brian Dennehy in the film's starring roles.

Yorkin hired all of the players, both on and off the screen, bringing together an extraordinary cast and crew. He also

Produced and directed by Bud Yorkin
Photographed by Nick McLean

had a preconceived notion of how the film should be photographed. He felt that the paintings of the American artist, Edward Hopper, best exemplified the quality of light, color and style that he wanted to portray in *Twice in a Lifetime*. Hopper is famous for his unforgettable images of the ordinary aspects of modern America while dramatizing strong personal emotion in the everyday world.

Anxious to fulfill his vision of the Hopper look, Yorkin searched for a director of photography to create the different moods of the film. He hired Nick McLean.

"The final element that influenced my decision to hire

Nick," said Yorkin, "was that he had been an operator for some really talented cinematographers like Vilmos Zsigmond and Caleb Deschanel. His background was very helpful because he could give me ideas from the operating point of view since he had certainly lived through some great experiences."

Great experiences indeed. Besides Zsigmond and Deschanel, McLean had operated for Conrad Hall, William Fraker and Don Peterman before becoming a director of photography. His credits include *Goonies*, *City Heat*, *Stick*, *Cannonball II*, and *Staying Alive*.

McLean recalls how he got into the business by starting out as a second assistant. "This is unbelievable, but in 1969 I was trying to get my 30 days to get into the union. A friend of mine had a show going in Stockton (California) for six weeks. He said 'I'm taking McLean as my second assistant.' At the time there was another McLean in the union. The union didn't check whether it was Nick or Gerald McLean. After I completed my 30th day I wrote to the union and they accepted me."

McLean got his big break when he joined Zsigmond's crew on *Red Sky at Morning*. "Vilmos was just a Hungarian cameraman that nobody knew," said McLean. "That was his first big job as a director of photography. We became good friends. Right after that he did *McCabe and Mrs. Miller* and *Deliverance*, and he was on his way. Within about two years he was this giant cameraman."

Establishing the look on *Twice in a Lifetime* was a collaboration of research which included help from veteran production designer Bill Creber. Keeping Yorkin's vision of the Hopper style in mind, McLean, Yorkin and Creber met to study a book of Hopper paintings that provided a basis for setting colors, architectural style, the quality of light, and the interplay between production design and the characters.

Yorkin insisted that no major colors be displayed. "All of

the Hopper colors have a very subtle, very soft look," he reminded. The colors are blues, dark greens, pale reds, stark whites, and deep, black shadows. Paying attention to the last detail, Creber had the house where the central characters of Harry (Gene Hackman) and Kate (Ellen Burstyn) live painted both inside and out. The inside consisted of blue walls in the living room, dining room, and bedroom. The outside of the house was even painted with red trim around the base.

Before principal photography began, McLean ran a series of camera tests to insure the colors Yorkin and Creber selected would hold their true values on film.

Using the Panaflex Gold, McLean rated 5247 at 125 ASA. "I felt the 5247 was a little faster than what Eastman Kodak recommended (100 ASA)," commented McLean. He rated 5294 at Kodak's recommended ASA of 400, allowing for fairly consistent printer lights.

McLean had a difficult situation exposing the interior of the house because it was an actual location and not a controlled set. The interior and exterior had to be balanced to create the Hopper look and style that Yorkin wanted. The exterior had to be brought down two stops using neutral density 60 filters on the windows. The interior had to be boosted from a probable 1.4 to 5.6 using HMIs through 1000 H paper, giving it a soft look.

The opening sequence of the film finds Harry on the job in a steel mill showing the dangerous work that comprises his daily routine. "That was tough," recalled McLean, "getting enough light to photograph inside the steel mill."

"If the sun was shining, I had enough light to photograph it. But, if it was overcast, it would require lighting the entire area inside the mill. Even with the 5294 I would not have had enough exposure to get the image. The owner of Jorgensen Steel said we could only be in there four hours since it's a really dangerous place.



For example, if the employees started watching us instead of what they were supposed to be doing then they might have been hurt, so it was a potential safety problem. We had to take the whole cast and crew there. Luckily, the sun peeked out and we got the shot!"

McLean set up the interior master shot of the mill by using natural daylight augmented by the fire from the furnace and a few HMIs to bring the exposure up a half stop. Using 5294, he rated the film at 400 ASA and shot at f/2. Most of the steel mill footage was shot with Steadicam since time to get the establishing shots was limited.

Working fast, McLean intentionally used the light from the fire to photograph the closeups of Gene Hackman working near the furnace. The fire emitted the quality and intensity of light necessary to get the look.

The third key location was the Shamrock bar where Harry meets Audrey and spends most of his free time. Directional tungsten light through 1000 H paper was used to create the source light from the dance floor during



the night scenes. Shooting at f/4 the 5294 was rated at 400 ASA. To create the day interiors of the bar, HMIs were used, bringing the source light from the street windows.

McLean's style of day exteriors remained consistent. "Instead of using lights, I bounced the sunlight to create fill light on the people. It looks natural. If the sun went behind a cloud we would just wait until it came back out to get the shot. Bud was really great about waiting until the right moment."

Most of the day exteriors were shot with 5247 unless it was

Church at sunset with long view of street and architectural styles emulating the Hopper look. Nick McLean checks meter during ferry boat with Steven Smith looking through viewfinder. Opposite page: Hackman, lit by firelight inside Jorgensen steel mill.

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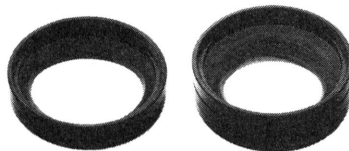


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cloudy or rainy. The ASA was normally rated at 80 with an 85 filter and the F stop would vary between 8 and 11 depending upon the intensity of the sun.

To insure that dailies were timed to the film's original specifications, McLean worked closely with quality control manager and timer, Bob Spielholz of Alpha Cine Labs, in choosing the printer lights. "If there was a problem getting the right printer light, Spielholz was great about coming out to the set to see the color of the walls, for example, to see what color I was trying to achieve," McLean recalled. "He would spend a couple of hours with me and then go back and start printing."

Architecture of middle America is a focal point in Hopper paintings. Shooting on location in Seattle was a key element of the development of the story. Not since *The Last Detail*, had a film been shot entirely on location in the Emerald City. The contained nature of Seattle provided the provincial look required by the script to enhance the development of the characters.

Yorkin added, "I also knew that Seattle had a very good theatre community. That made it possible for me to get very good actors on location without spending the money to fly them in from Los Angeles." In all, 26 speaking parts were cast in Seattle, not to mention the participation of countless extras.

"The subtext of the film is sports," Yorkin says. "Sports are the lifeblood of these characters, as they are for many Americans. Harry and Audrey follow the Seahawks and the Mariners, and we were very lucky in getting a lot of cooperation from both teams."

Shooting Hackman and Ann-Margret in the stands of the Seattle Kingdome throughout the entire opening game of the 1984 Seahawks season was no problem for McLean and his crew. Camera operator Michael O'Shea was able to zoom in to Hackman and Ann-



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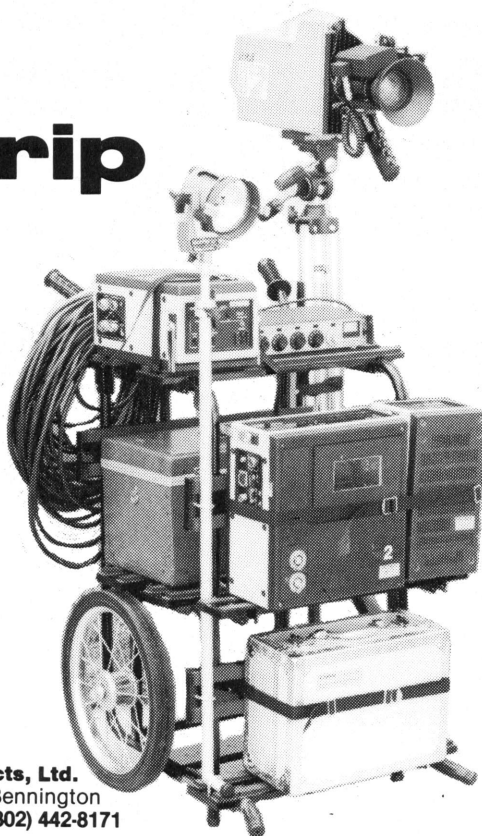
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Margret in the stands while utilizing the enthusiasm of the Seattle fans surrounding the actors. "We were shooting 5294 inside the Kingdome at 5.6. There are normally 100 foot candles during a football game, so we had plenty of light," recalls McLean.

Yorkin used long master shots to obtain emotional performances, and by staying on the scene two or three minutes he allowed the emotion to build. McLean described how operator O'Shea was able to follow the performers. "We would do a master shot and a move into a closer master, and another move without added coverage," McLean explained. "Bud wanted to capture all of this reality by using the master shots, and have us be on our toes and not miss anything on focus or framing. He just wanted to get those real gutsy performances. There is a scene in Harry and Kate's bedroom where it's very softly lit and very emotional. If Gene had had to do a lot of coverage he probably would have punched someone out and said 'get your act together, and then I'll do it.' We would have never gotten that incredible performance from Gene if we had done it old Hollywood style."

McLean talked about his crew and the important role they play in establishing good communication on the set. "There are only a handful of really good gaffers and grips so you want to keep these guys available to you. Let them know when you're working or not working and try to get one of them on your next picture. It's tough to do sometimes. Now I'm losing Tommy Stern (gaffer) and Charles Saldana (key grip) since Clint Eastwood is doing a picture in September. You can't blame them for staying with Clint because he's going to do another 20 pictures or so in the next 10 years. So after losing Tommy and Charles to Clint, I've picked up Colin Campbell who was Vilmos' gaffer. My dolly grip who was with me on *Twice in a Lifetime* (William Young) has been moved up to key grip since he's capable of

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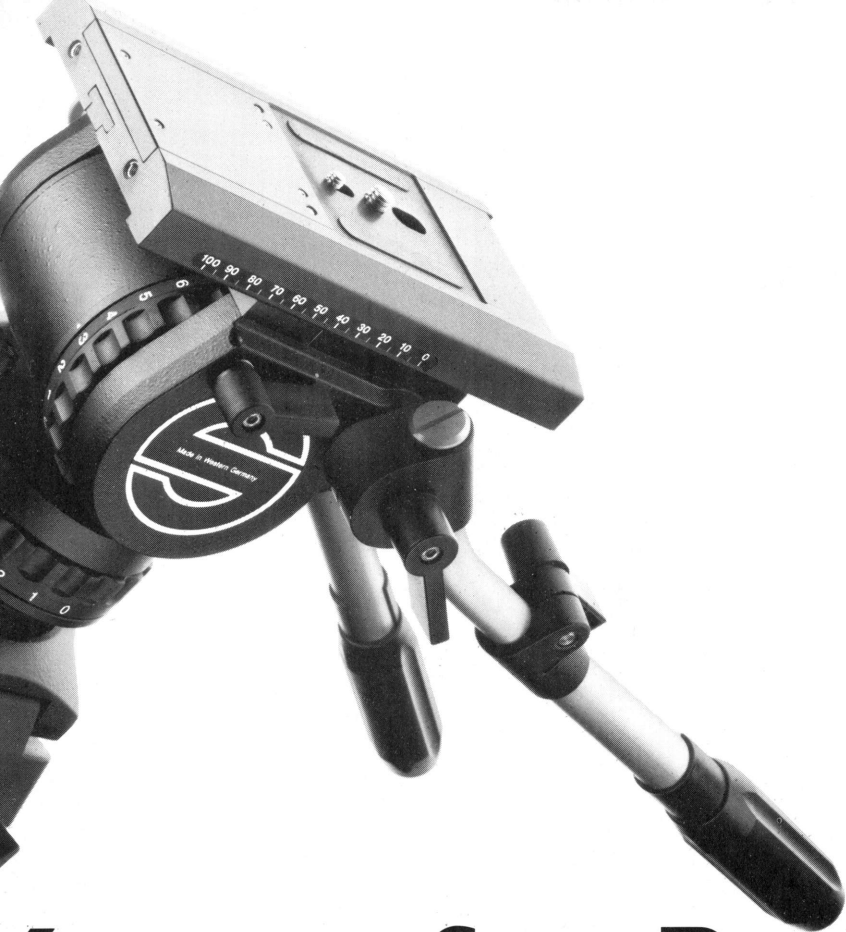
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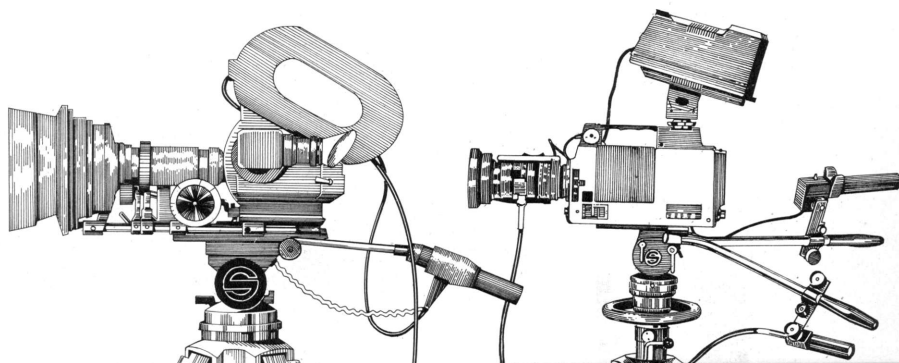
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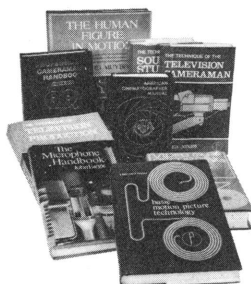
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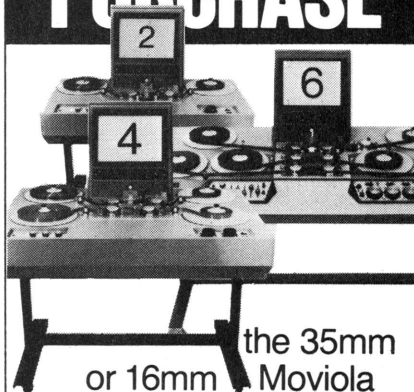
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doing anything. So, you just keep this little family of good people together and get good work—it saves production time, too, when you have good people.”

McLean talked about the relationship with the director and the importance of working closely every step of the way. “It has to be a marriage,” McLean emphasized. “You have to think alike. Help each other. There are things that he will pick up that I won’t or things that I’ll pick up that he won’t. You give 100 percent to each other. He’s the guy that everybody’s trying to please. If it’s not good, it doesn’t work and you’ll ruin the whole picture.”

McLean has worked on a lot of studio pictures of late but says that he felt freer on this film than on “any other film because it was Bud’s money and we did some incredible things I wish we could always do when working for a major studio. On a studio picture there are many things you have to do, like go to lunch at a certain time, break at six hours after starting, and so forth. We all got together on this picture and said we would start a sequence and work straight through—it’s called French hours. We would have food out all the time so the crew could get something to eat when I was lighting the next scene. You can’t do that on a studio picture. I have always thought that going to lunch costs you two hours. We probably got more work done because we would go in at 8:00 in the morning and go home around 5:00 in the afternoon working straight through the day. Of course, we could do all of this because Bud had control.”

Yorkin’s commitment to the picture, financially and artistically, allowed McLean to wait until the light was right to get the shot. McLean continues, “If something wasn’t right, he would just wait. I never would have had that freedom on a studio picture. Eighty percent of the cameramen in the world would not have had the freedom I had on this picture. When you have that kind of director you have no excuses.” △

Post-Production of *Opportunity Knocks*

by Richard Nisbet

For some time now, interest has been growing in the use of electronic techniques for motion picture post production. As more filmmakers become acquainted with the advantages of videotape editing, a number of firms have begun exploring ways to edit film on videotape and then cut the negative to match the edited videotape. Much of this effort has involved computer programs or hardware that are designed to resolve the 24/30 frame per second differential between film and tape. Inevitably the systems are complicated and expensive. Here, we are talking about a simple and inexpensive system that makes use of existing technology which my associates and I have developed and proved workable.

Several years ago while preparing a feature for which "the financing was assured" I began exploring the state of the art in electronic post production. My background was in film, but I have always felt that post production utilizing sprocketed film was awkward. Investigation convinced me that videotape editing would be much faster. It also seemed obvious that using multi-track audio recorders to lay down sound effects, dialogue and music would be vastly quicker and simpler than the traditional cut and splice methods of film. I was convinced that electronic post production offered major advantages. But the systems that I found had been developed by firms catering to major film productions and, as such, were priced out of the range of the independent filmmaker working on a limited budget.

As it turned out, the financing for my feature fell through. But I was possessed of an idea and I *did* have access to enough funds to try to realize that idea. So after three years of effort I finally succeeded in putting together the studio, the system, and also a short pilot project, a film called *Opportunity Knocks*.

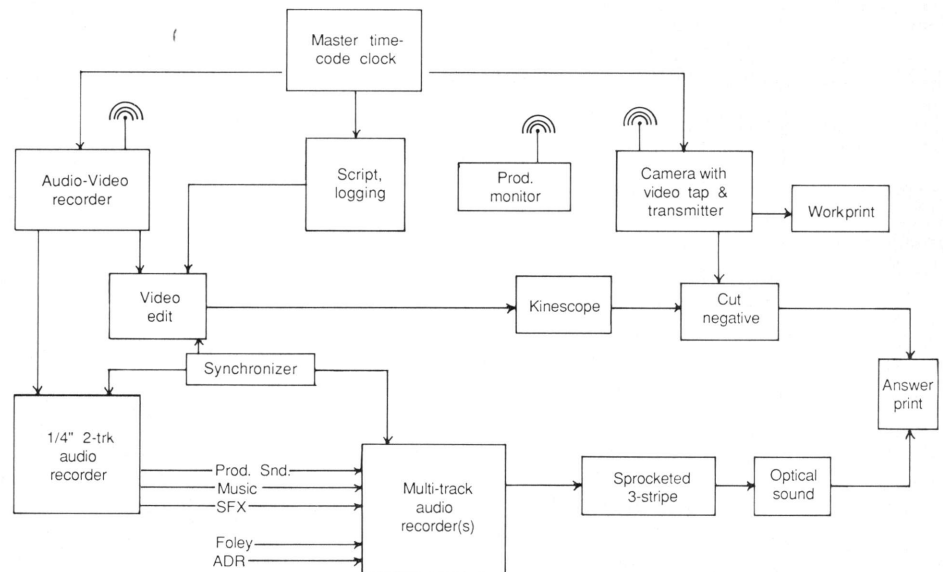
Opportunity Knocks is a short live action film. It's a humorous story that concerns two neighbors who have a running battle over noise but who inadvertently end up helping each other without either being aware of it. Downstairs lives a young musician who aspires to be a conductor. Upstairs lives a rough-looking character who formerly worked for Jimmy Hoffa as a chauffeur. (Needless to say, but for the record, this is an entirely fictional character. I know absolutely nothing about Jimmy Hoffa or any of his associates . . . friends or enemies.) The chauffeur is writing an exposé of Hoffa's disappearance. He's never written anything in his life and his difficulty is compounded by his fear that *he* will be terminated before he can finish the story. The conflict that evolves between the two is humorous and telling and comes to an unexpected climax.

Opportunity Knocks is only 13 minutes long, but it took two years to complete. This is an absurd amount of time to take for such a short film, but I had to build a studio and work out a system for interfacing video and film.

Now I feel sure that we could complete post production in a matter of days. We shot the project over three weekends using 16mm negative film and 1/4" audio tape on a Nagra. When the negative was processed we had it transferred to videotape on a Rank Cintel telecine machine. When the transfer was made, we had two window dubs placed on the tape. One had the SMPTE time code numbers (which were also recorded on one of the sound tracks,) and the other had film foot and frame numbers. Subsequently, we edge-coded the negative with identical foot and frame numbers. This was to be our key to cutting the negative after the videotape was completely edited. For my next project, I plan to strike a work print and make my videotape from that. I think a workprint is necessary in order to see just what your film looks like and the added cost is offset by the fact that a less expensive telecine machine can be used for transfer when a precious negative is not at risk.

Our first step was syncing the sound to the picture. We re-recorded the production sound from the Nagra

Flow chart for suggested production utilizing electronic post-production techniques.





tenth generation
recording
photographed
directly from the
monitor screen.
Although picture
degradation is
obvious, the foot and
frame numbers are
clearly legible.
(Photo by author)

(using the resolver) to a two track $\frac{1}{4}$ " audiotape, one track of which had been pre-recorded with SMPTE time code. This could be looked upon as the equivalent of transferring to sprocketed magnetic stock with the time code functioning as "electronic sprocket holes." The synchronization of the picture and sound is performed electronically by an amazing piece of computer technology, the Audio Kinetics Q-Lock. The Q-Lock is the heart of the system. It slaves our $\frac{1}{4}$ " 2-track and our 2" 16-track audio recorders to the $\frac{3}{4}$ " videotape machine. Anyone who has ever struggled with syncing dailies using workprint and magnetic stock would turn green with envy over the ease of syncing electronically. This is the way it works:

The clapstick point is located on both picture and sound using the Q-Lock keyboard. Because both have been previously logged, it is simply a matter of entering the time code address on the keypad and locating the scene. Once sound and picture are together, a few more buttons are pressed and the production sound is transferred to one of the audio tracks on the videotape. It so happened that the summer we began work on the film my 19-year-old daughter Cassie was interning with me. After training her for an hour or so I turned the syncing chore over to her and she polished it off like an old hand.

Once the production sound was synced to the picture we went on to the editing. The scenes are logged by reel and time code number. There's no cutting and spooling, there's no film bin, and there are no elusive little trims all over the floor . . . just a few book-sized videotapes within arm's reach of the editor, who no longer needs an as-

sistant to track down shots. Before we began editing, we recorded time code on one of the sound tracks of the tape upon which the scenes were to be assembled. The time code would be the guide during our sound editing. The process is vastly simpler, quicker and neater. The alleged disadvantage I keep hearing from film editors is this: "What happens when you have an edited tape and the producer wants to add five frames to a scene in the middle? The answer is simple. Re-record the sequence up to the change, make the change and re-record the remainder of the sequence. If you keep your edited "reels" limited to ten minutes it takes very little time to accomplish the task. You lose a generation, but it makes no difference as long as the time code and foot-and-frame numbers are legible. Off-setting this little inconvenience are the advantages of vastly quicker logging, searching and actual editing. Our editor Al Martinez had never worked in video before tackling *Opportunity Knocks*. He became so enthusiastic over the system that he is using it for a current 50 minute documentary project.

Once we finished the picture editing we went on to the sound. Because we were working in a difficult location (our filming coincided with a carpet-laying project next door,) we had problems with our production sound. For a while we tried saving it with equalizers and noisegates, but then we decided to build the entire sound track from scratch. After all, this was to be our studio demo reel, so we might as well show our stuff. Our Automatic Dialogue Replacement (ADR) sessions were a breeze. A cycle of any length can be programmed into the Q-Lock and it will repeat a scene over and over again until given instructions to stop. We recorded the new dialogue directly onto the 16-track recorder and would usually record several takes without a pause. The actor kept repeating his lines until the director was satisfied. It is a source of pride to me that most people who see the film are totally unaware that every word of the dialogue was "looped."

Sound effects were either recorded on location, taken from our library, or foleyed in our sound booth. We usually found it faster to foley the sound effects for the same reasons that the ADR sessions were so easy.

All of the sound in the picture was built on 12 of the 16 tracks on our 2" audio recorder. Three were saved for the music, effects and dialogue composite tracks. (The 16th track is used for time code.) By using predubs for some of the more complicated sound effects, we managed to get along quite well with just 12 tracks. But had we needed more, we could have mixed onto our 4-track recorder giving us a total of 15 tracks to work with. For an even more elaborate project we could gang together two multitrack recorders with the Q-Lock. At this point we had an edited videotape and a composite sound track. Now it was time to go back to the negative, cut it to match the edited videotape and marry the sound for an answer print.

My plan for getting around computer programs and expensive state-of-the-art equipment was to make a kinescope of the edited videotape. This would give my negative cutter something concrete to cut to. The numbers would be right there on the picture for easy identification. Kinescoping has been used little since the advent of videotape, but we found Ringer Video Services, who did the job for us. After the kine was made we had our sound transferred to 16mm magnetic stock, hoping that the time code would keep it in sync. But no such luck. The sound simply wandered all over the place. So we started calling anyone and everyone we could think of who might have an answer for us.

If anybody knew the answer, we couldn't find it. My original idea had been to make the kinescope and transfer the sound to mag at the same time, relying on the main frequency to keep things in sync. But this would have necessitated my purchasing a kinescope for my studio or hauling all of my equipment over to Ringer, a prospect that we both found unthinkable. There *was* one way we could get our sound in sync. Ringer has a standard system for getting a synced mag when they make a kinescope. While shooting the kine, they simultaneously record the sound from the videotape onto a 2 track audiotape recorder. They also record a pulse on the other track which is the guide for their soundlab to transfer to mag in sync. (This is similar in principal to the familiar pilotone system.) We had a final mix on our videotape and could

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have transferred that. The problem is, the sound quality on a 3/4" videotape leaves a lot to be desired, and after all, we were trying to put our best foot forward. But at one point I was so discouraged that I was about to go for it just to salvage the film.

My sound editor and mixer, Bret Shelton, and I stumbled along for eight weeks trying to figure it out. And then somehow we came up with what seemed like a possible answer:

We had another kinescope made and this time, instead of having the *sound track* on our videotape transferred to audio, we had Ringer record our *SMPTE time code* along with their standard pulse. Then we brought it back to our studio and, using the time code on their audiotape, we sunk it with our multitrack recorder and transferred the pulse over to one of the 16 tracks. We mixed down again onto a 2-track tape, only this time we put our program onto one track and that pulse onto the other.

We next had a 16mm mag recorded by Cinesound using the pulse to sync it. When it was done, Bret hustled it to the nearest Moviola to check for sync. I was sitting in my office waiting with very few fingernails left. By this time we had about four failed tries behind us and I was preparing myself for yet another. Bret finally came back. He was slumped over and wearing the face of a Basset hound. I was ready to burn down the studio. But then, with a deadpan that would do credit to a Mississippi gambler, Bret said, "It's perfect."

And that was that. We finally had proof that film can be post-produced electronically, without benefit of computers or exotic and expensive equipment. We've got something for the independent filmmaker who wants an expedient journey through the post production zone.

There are several developments either now on the market or soon to be there that will facilitate the entire process of film-to-video-to-film. One key to the matter is getting the identical time code on the film and the audio tape at the same time. Kodak's datacode, (a process whereby time code information can be recorded on an invisible magnetic coating imbedded into the film,) once in use, will be a giant step in the right direction. Aaton's time code recording system is already available in

16mm. Coherent Communications has a system for recording time code on every frame of film that is now available on Arriflex 16mm cameras and will soon be available on their 35's. Using time code clocks set to run in lockstep at the beginning of each day, the film and audio tape now are recording not only the time code but the camera, (or recorder) roll, scene and take numbers. Slating is unnecessary and the script person is logging everything by time code number.

Ideally, it would be best to use a video assist on the camera so that a 1/2" or 3/4" video picture could be recorded at the same time, also recording the time code that is on the film and the audio. The new 1/2" "Hi-Fi" video recorders are capable of recording stereo sound superior to that of any reel-to-reel recorder. If such a machine were used to record sound, the editor, working in the field, could begin assembling trial edits of scenes virtually as they are being shot. If one of the small video transmitters that are now available is used, the picture can be broadcast not only to the VCR, but to a small hand-held tv receiver so that the director could have constant access to the camera's view. Now the filming experience becomes truly holistic. The director, the editor and the cameraman all have access to the camera eye at once.

With a trial edit completed in the field, there should be little necessity for pickups. And when the project goes into the post-production phase, much of the work would already be in place. Let's face it, when millions are being spent on a film, thousands are being paid in interest every month. It behooves the filmmaker to get his product finished and into the marketplace as quickly as possible. The existing and soon-to-arrive electronic technology is capable of saving the producer vast amounts of precious time and money. Most of what is needed is there, ready to be utilized. The biggest problem is not the technology, it is industry acceptance of that technology. It is my hope that *Opportunity Knocks* will, in some small way, hasten that acceptance. △

Richard Nisbet is a director, writer and actor in both theater and film. He is also the owner of Electronic Post Production Systems in West Los Angeles.

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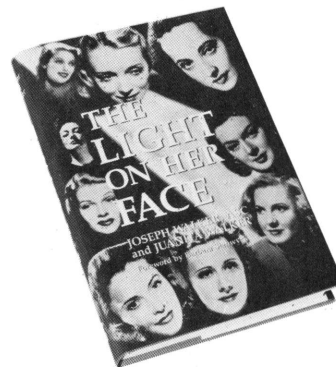
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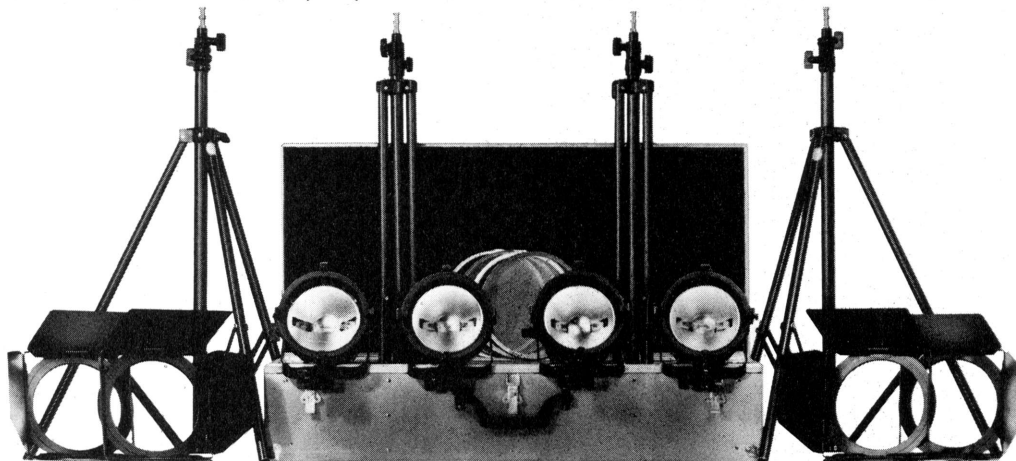
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Video Assist Matte System

by Kirk Paulsen

Video-assisted filmmaking has finally come of age and earned a position of respect on the film set. Developed initially as an "instant replay" for checking camera position, movement, and talent performance, it became the curse of the industry to many commercial directors because of the creative power it had diverted to the client. Recent technical advances in the area of video assist have realized its true potential as a valuable, time-saving, budget-cutting production tool. This article explains the development and operation of a video assist matte system which can be used in motion picture production to precisely match separately-filmed scenes.

In state-of-the-art video production, the ability to wipe or dissolve between a pre-recorded image and a live video signal is quite common. It was only a matter of time before video-assisted filmmaking adapted this technology to the art of commercial and feature film production. Victor Duncan, Inc., one of the nation's largest suppliers of professional motion picture and broadcast video production equipment, has combined certain key elements from both these mediums to facilitate the exact match of a pre-recorded video assist image to that of a "live" video assist image for the purpose of precisely matching elements of scenes photographed at two separate times.

Most current motion picture cameras are capable of providing a video assist image. For this purpose, a special optical system is retro-fitted onto the film camera. This viewfinder assembly utilizes either a prism or pellicle (partially silvered mirror) to divide the light from the camera lens between the cameraman's eyepiece and a video camera. Usually a very small, lightweight, high sensitivity industrial black and white camera is used for this purpose as the amount of light eventually reaching the video assist camera is only

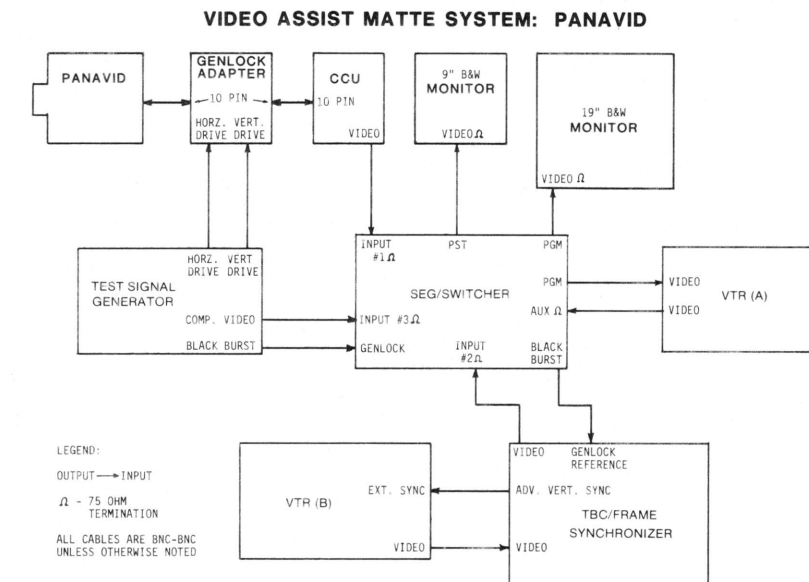


FIGURE 1

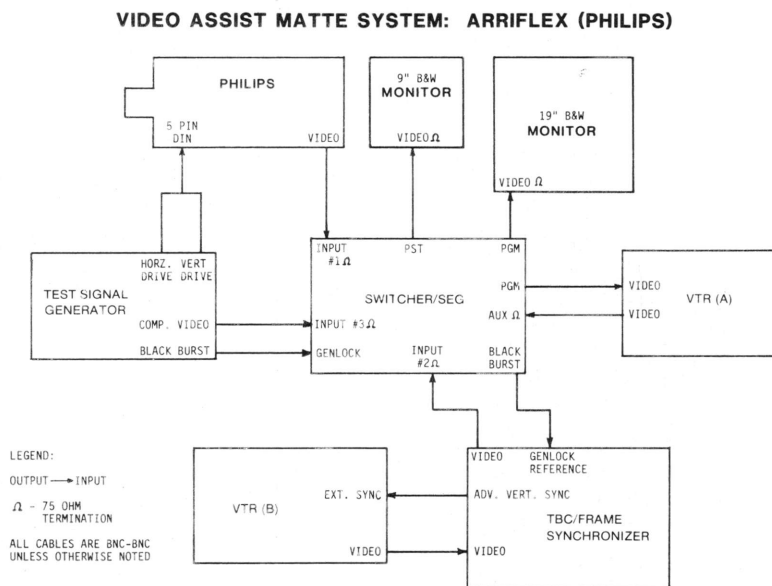


FIGURE 2

a fraction of the total light that passes through the camera's lens. Black and white video tubes are considerably more sensitive than current color video tubes, sensitive even in the infra-red range.

Camera sensitivity is critical when filming with today's high-speed film stocks which can produce acceptable images in as little as a few footcandles of light. The video assist camera produces an

STEP #2
Playback first scene.

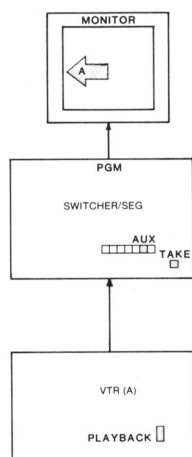


FIGURE 4

STEP #3
Put tape from VTR (A) into VTR (B) and blank tape into VTR (A).
Mix second scene with playback of first scene.

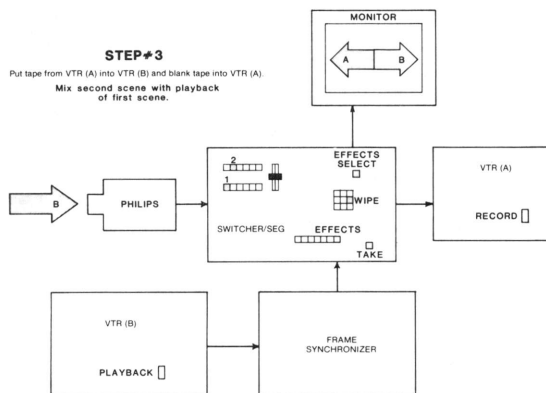


FIGURE 5
(For playback of composited shot, repeat step 2)

image of the film camera's ground glass, complete with frame lines. This allows anyone present during production to check the camera operator's picture composition, camera movement, and the talent's performance on a video monitor. The video assist image may also be, and usually is, recorded on a VTR so that takes may be viewed repeatedly.

Video assist technology has remained quite crude in comparison to the highly sophisticated film camera and broadcast video technology of today. Images generated by most video assist camera designs are currently of relatively poor resolution and latitude. Therefore, video assist is generally used as a reference only, to verify difficult camera movements, and assure that a performer's lines are spoken correctly. A more significant application of video

assist can be found in any production utilizing such devices as Steadicam, Panaglide, and Cam-Remote in which the video assist image is integral to camera placement. On productions utilizing the "Video Assist Matte System," however, the image displayed on a video monitor is essential to a proper match of the two separately-filmed scenes.

In the past, several methods were used to match two separately-filmed scenes. The most common, and most accurate, required a matte punch and camera with a ground glass matte slot. In this process, the first scene was photographed and the resulting footage processed and printed. The following day, a single frame of film was then inserted alongside the motion picture camera's ground glass in a slot specifically designed for this purpose. While looking through the camera's viewfinder, the operator could then see the scene being photographed with the second scene superimposed over it. This allowed the two separately filmed shots to be precisely aligned with one another.

Several limitations to this system include having to wait until the initial scene's footage was processed and printed, resulting in an additional day's worth of production and all the cost that entails. In addition, the camera to be used had to be available with a ground glass matte slot (not all cameras are designed this way). Most importantly, the alignment could not accommodate any movement of the frame during the actual take; and of course, it was not possible to view the resulting effect until the two scenes were optically matched and printed at the lab at a later date.

The second, and considerably more primitive method of matching two scenes did, in fact, utilize video assist. However, the match itself was accomplished by crudely marking certain elements with a grease pencil. During the second take, the subject was aligned into the area previously outlined in grease pencil. Any slight discrepancy between the placement of the two scenes would need to be compensated for during the optical process. Of course, the effect was not visible during production and, therefore, timing errors and proper camera movement could only be verified after the fact.

The idea for a system capable of matching playback of a video assist image to a live signal was born out of customer requests. It is altogether routine for the production community to ask a production equipment rental company, "Can it be done?," while our technicians seek ways to satisfy their exacting requirements. In this case, we already had the necessary video equipment in our inventory. All that was needed was to find a way to interface current video assist cameras with such a system. After discussions with our engineering staff and rental technicians, a logical approach to a complete "effects system" was decided upon.

The heart of the system is a video switcher and special effects generator. The SEG is the point at which the various signals are mixed to create a desired effect, be it a dissolve, wipe, superimposition, or hard-cut. One of the requirements of a video switcher/SEG is that all the incoming signals be perfectly "in phase." Timing all of the video signals to one reference eliminates the possibility of jumping or glitching when switching between video sources.

Multiple video cameras can be phased to one another without complications. Attempting tape playback to a switcher, however, is a bit more complex. Complications arise out of the timing errors which are introduced during tape playback. Video tape, like audio tape, suffers from problems of tape stretch and mechanical disturbances similar to wow and flutter. Such timing errors are random and cannot be "re-aligned" by simple adjustment of the VTR. To solve tape playback errors, a time base corrector of TBC/frame synchronizer is incorporated into the matte system.

The digital time base corrector converts the unstable video playback into digital from where it can be processed, "retimed," and fed to the switcher in precise synchronization with the "live" video signal. A TBC/frame synchronizer is a time base corrector with the added ability of freezing and holding a complete frame of video information on the screen indefinitely. So, the ability to time base correct the initial VTR playback allows it to be mixed with other video signals; and by utilizing frame storing capabilities, a single

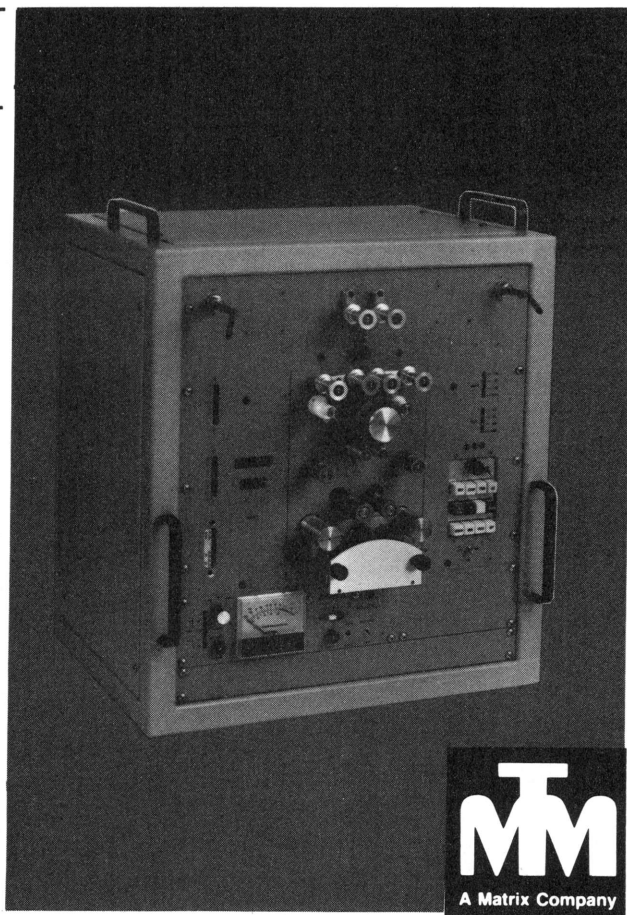
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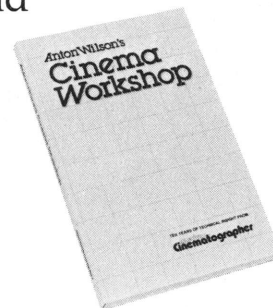
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frame of the video assist image can be easily aligned with the second video image during scene set-up.

Our experiments with a matte system involved two of the more common video assist cameras available at the time, the Panavision Panavid and Philips LDH-26 video assist cameras which are used with Panaflex and Arriflex film cameras respectively. Initial attempts to phase either of these video assist cameras to the switcher proved futile due to the non-standard and rather unstable nature of their sync pulses.

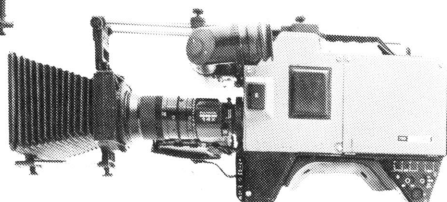
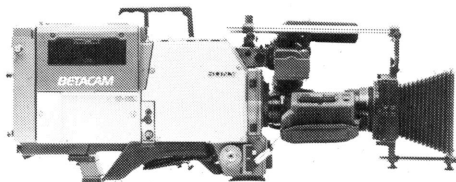
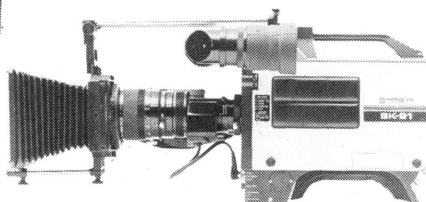
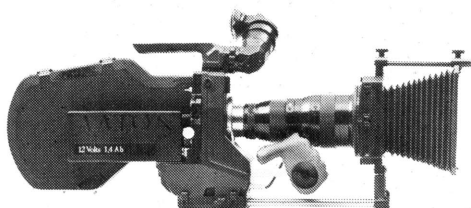
Video images are composed of hundreds of individually scanned lines of picture information (525 in the U.S.). The picture is created by varying intensities of voltage on each line which are directly proportional to the light intensity of the image itself. All of the picture elements are kept in order from the pick-up tube of the camera to the CRT (cathode ray tube) of the monitor by a series of horizontal and vertical sync pulses. These sync pulses are somewhat analogous to the sprockets on motion picture film, and without their precise synchronization, the video image is indiscernible.

Rather than attempt to lock all of the related equipment (switcher and TBC) to the unstable sync signals of these particular video assist cameras, our technicians opted to use a precise NTSC test signal generator as the master sync source for the entire system. Our first task was to design adapter cables which would allow the video assist cameras to receive external horizontal and vertical drive signals from the test signal generator.

For use with Panaflex cameras, a "Panavid genlock adapter" was developed. This box is interconnected between the 10-pin cables which run from the CCU (camera control unit) and the Panavid video assist camera. Horizontal and vertical drive signals are fed from the test signal generator into the adapter box which routes the sync signals to the proper pins on the 10-pin cable (Figure #1).

The Philips LDH-26 video assist cameras have a built-in 5-pin DIN connector on them which we ordinarily use in adapting a Cinema Products VSG-1 external crystal sync generator to the video assist camera. The VSG-1 crystal sync generator was designed to

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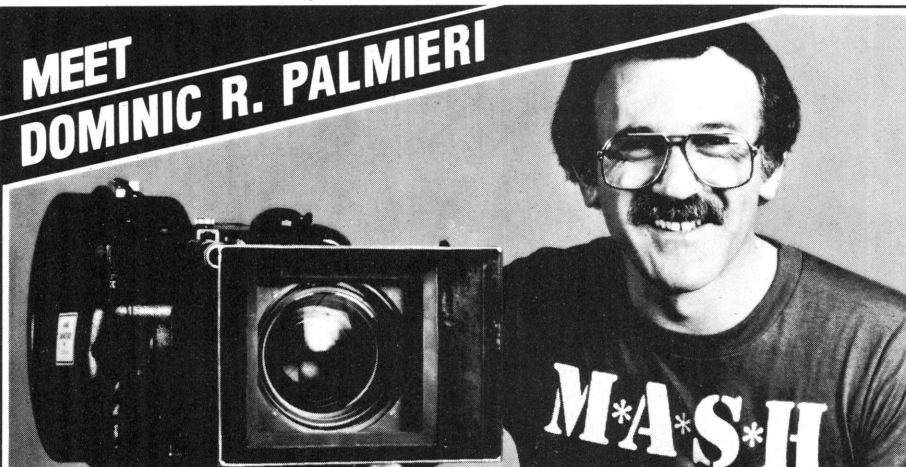
provide the LDH-26 with a very stable sync signal, thereby eliminating many of the sync problems found in this particular video assist camera. When used with the matte system, however, the VSG-1 sync generator is disconnected and a "Y" cable is connected from the horizontal and vertical drive outputs of the test signal generator to the 5-pin DIN input on the video assist camera (Figure #2). In both instances, the Pan-avid and Philips video assist camera's sync signals are controlled by the NTSC test signal generator, providing a stable source of sync to which the other matte elements can be locked.

Interconnection of the various components is relatively simple to anyone familiar with broadcast video equipment. As has been previously mentioned, the video assist cameras are genlocked to the test signal generator via the horizontal and vertical drive outputs. Composite video is fed from the video assist camera to one of the SEG/switcher's inputs. The SEG/switcher is genlocked to the test signal generator via the black burst output. Color bars are fed from the signal generator to one of the SEG/switcher's inputs merely as a reference. Also, the TBC/frame synchronizer is genlocked to the switcher by one of its black burst outputs. The interconnection of the TBC to VTR-B is common with advanced vertical sync being fed to inputs on VTR-B.

The 9" monitor is connected to the switcher's preview output so that the video assist operator may align or cue a take while the rest of the crew sets up the next shot referring to the 19" monitor which is connected to the switcher's program output. VTR-A can record whatever signal is fed to the switcher's program output; be it the "live" video image, prerecorded playback from VTR-B, or both composited as an effect.

The output of VTR-A is fed into the AUX input of the switcher so that playback can be controlled from the switcher. The AUX input is independent from any processing circuitry on the SEG/switcher eliminating the need to time-base correct or genlock that particular machine to the system. Playback from VTR-B is fed first to the TBC and then on to an input of the switcher. It is this pre-recorded video assist image from the camera to create a particular matte effect.

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Before an actual matte effect may be attempted, the various components must be properly "phased;" that is, all of the timing elements of the various signals must be in perfect synchronization. A genlockable SEG/switcher must be utilized with horizontal and subcarrier phase adjustments that can compensate for any delays between it and the test signal gen-synchronizer must be properly aligned to compensate for any delays between it and the SEG/switcher. (Subcarrier phase need not be adjusted on the TBC as the recorded monochrome video assist signal does not contain color burst). Once the system has been properly phased, creation of a matte effect may begin.

The first segment of the matte effect is punched up on input #1 of the switcher and recorded on VTR-A. This take can then be reviewed by punching up AUX on the switcher as in Figure #4. Once a suitable take has been recorded, the crew may then begin setting up the second element of the matte effect.

At this point, the first videotape is ejected from VTR-A and take #1 cued up in VTR-B. A blank videotape is then inserted in VTR-A to record the composite effect. It is here that the SEG/switcher comes into full use to create the desired matte effect which can be cut, dissolve, or wipe. It should be noted that factors such as tape playback, radical temperature changes, or high contrast lighting can cause the video assist image to shift slightly. To compensate for any such shift between the prerecorded and "live" video assist image, the horizontal and vertical centering controls on the video assist camera may need to be adjusted. Our experience has shown that by switching between the horizontal and vertical wipe modes on the switcher while adjusting the cameras centering controls, the two elements can be precisely aligned. The film camera's ground glass lines which are always visible in the video assist image are the best reference for proper alignment. A wipe or superimposition between the two elements in the scene itself should they be moved accidentally during a "lock down" shot.

The final composited effect is recorded as in Figure #5. At an appropriate cue (i.e., "Roll, camera, action," etc.), the prerecorded image is played

back in VTR-B and the final matte effect recorded on VTR-A. The video assist matte effect may then be replayed on VTR-A, as in Set-up #2, Figure #4).

Applications of the system are as varied as the requests of the clients who rent it. One production company in Chicago used the video assist matte system to match a 30-ft. wide set of a car battery to the actual battery on a tabletop. Another director filmed an actor in a mock-up living room set as the carpeting changed colors and patterns under his feet. The most innovative use to date allowed clients and crew to view a composited shot of pro golfer, Tom Watson, interviewing himself side-by-side, before a single roll of film had been processed.

In the world of broadcast video production, the set-up and operation of such a system is relatively simple. However, this represents the most technically advanced use of video assist technology to date. Producers should recognize that additional set-up time is required, perhaps having the video operator begin his day an hour ahead of the rest of the crew. Also, keep in mind that the video assist operator has his hands full. This system requires about four times as much button pushing and alignment as a standard video-assisted film production.

It should, however, be apparent that for many applications, the additional equipment cost and time requirements in no way dull the many varied advantages of such a system in the world of film production. One recent production in Chicago involved shooting a commercial for a new dishwashing liquid. The final shot centered on a greasy pan which needed to be matched to the same pan, only sparkling clean. After matching the two images with the Video Assist Matte System, the director, clients, and crew huddled around the monitor. A hush fell on the group as the video assist operator pulled the special effects control lever, dissolving the greasy pan into a shiny one. Everyone present could rest assured that the two shots were perfectly matched and, more importantly, that the concept itself would work. $\triangle$

Kirk Paulsen is general manager of Victor Duncan, Inc. in Chicago. He has a BS in Communications from Southern Illinois University.

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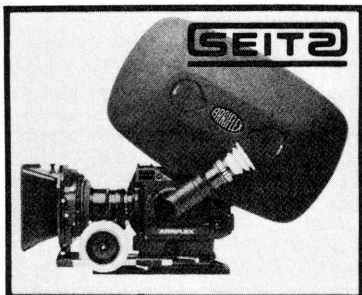
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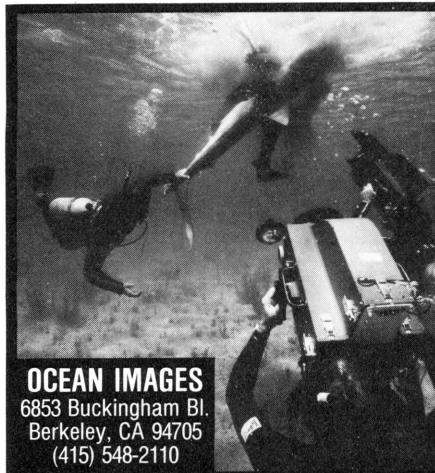
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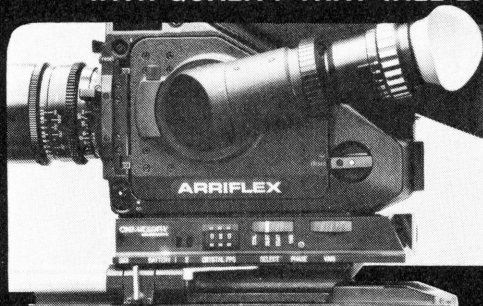
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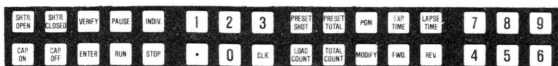
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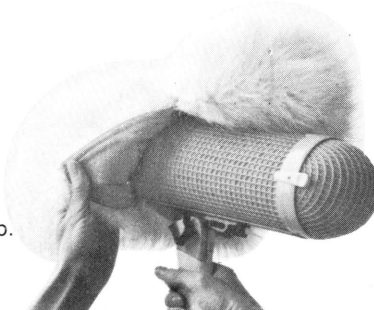


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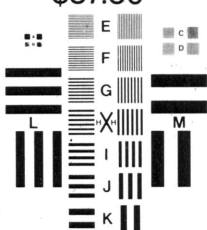
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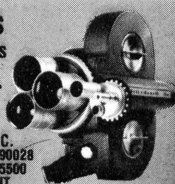
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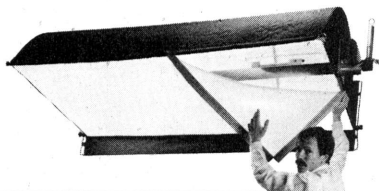
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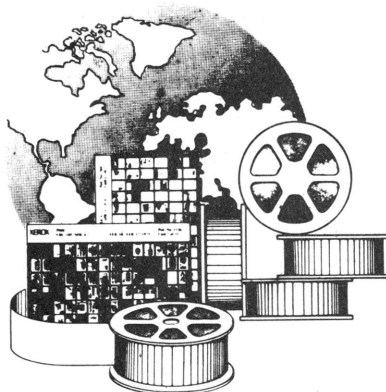
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In Memoriam

L. B. "Bill" Abbott, ASC, one of America's most honored visual effects cinematographers, died September 28 in Los Angeles. It is estimated that he worked on some 300 theatrical features and approximately as many TV series segments during his 55 years in the industry.

Abbott was born June 13, 1908, in Pasadena. His father, Lenwood Abbott, was a portrait photographer who gravitated into the motion picture field as a cameraman and laboratory supervisor. Four months after Bill graduated from Hollywood High School, Class of '26, he got his first movie job as a member of a photographic crew shooting a special effects sequence for *What Price Glory?* for Fox Film Corporation. It was a Williams Process sequence in which a detachment of marching soldiers was superimposed (in the camera) into a miniature forest. He was paid \$4.17 per day, and his first day lasted 36 hours. "I have often wondered why I didn't consider this a bad scene and drop the whole idea," Abbott said recently, but he knew he had found his calling.

Ten years later he graduated from assistant cameraman to operative cameraman. During those years he worked for some of the greatest directors of photography, including Arthur Miller, Glen MacWilliams, Peverell Marley, Karl Struss, Ernest Palmer, Joseph Walker, Arthur Edeson, Charles Clarke, Leon Shamroy, Daniel Clark and Paul Vogel. Abbott was designated a director of photography in 1943 and placed in charge of the Twentieth Century-Fox special effects camera department, which was then under the supervision of the noted matte artist, Fred Sersen. In 1957, Abbott became director of all special effects for Fox, a position he retained until his "retirement" in 1970. His services were so much in demand that several studios repeatedly brought him back into action to supervise special effects for numerous large-scale productions.



Abbott won four Academy "Oscars" – for *Doctor Dolittle* (1967), *Tora! Tora! Tora!* (1970), *The Poseidon Adventure* (1972), and *Logan's Run* (1976). He also received four "Emmy" Awards – two for *Voyage to the Bottom of the Sea* (1964-65, 1965-66) and one each for *Time Tunnel* (1966-67) and *City Beneath the Sea* (1970-71).

A few of his other films are *Journey to the Center of the Earth*, *The Lost World*, *Voyage to the Bottom of the Sea*, *Cleopatra*, *Fantastic Voyage*, *The Boston Strangler*, *The Towering Inferno*, *Patton*, and *1941*. He was director of special effects for all Twentieth Century-Fox TV productions from 1953 through 1970. The programs include *Batman*, *Land of the Giants*, *Adventures in Paradise*, *The Twentieth Century-Fox Hour*, and *Twelve O'Clock High*. He returned in 1972 for the M*A*S*H series, and still later worked on TV features for Warner Bros.

Abbott's book, *Special Effects – Wire, Tape and Rubber Band Style*, published last December, was called by *Daily Variety* "Richly unique . . . for the special effects practitioner and the fan . . ."

He is survived by his wife, Muriel, sons Peter, of Annapolis, Md., and Michael, of Los Angeles, and five grandchildren. △

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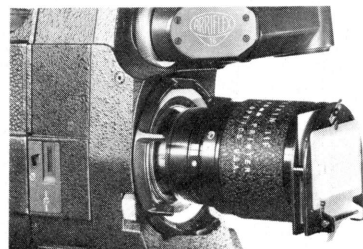
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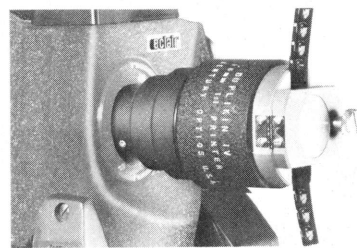
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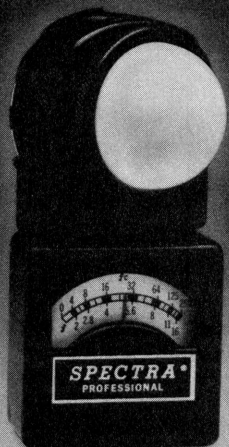
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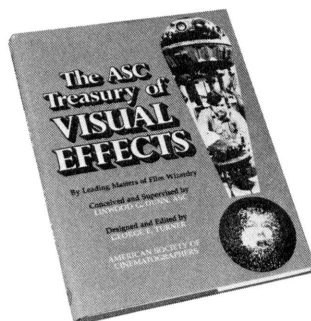
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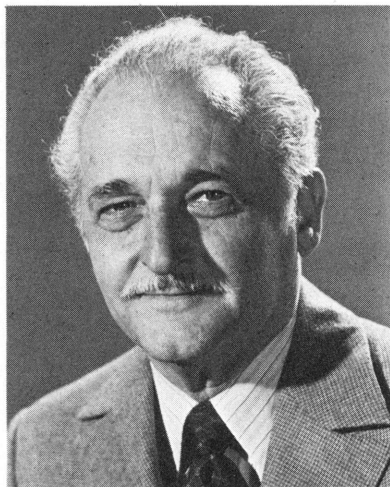
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From the Clubhouse



Philip Lathrop, ASC, garnered his first Emmy award in September ceremonies at the Beverly Hilton in Los Angeles. He was tapped for his work as director of photography on "Malice in Wonderland," a television special about the gossip columnist battles of Hedda Hopper and Louella Parsons in Hollywood's 30s.

Stanley Cortez and Henry Freulich, ASC members, talked recently about the history of cinematography and cameras before a group of Marine and Navy cinematographers at the Clubhouse. The class, from USC, is taught by Dick Barlow, an ASC associate member who is head of the camera department at the Burbank Studios.

Ernst Nettmann of Nettmann & Associates, Inc., Van Nuys, is the newest associate member of the A.S.C. He is an electro-optical design engineer and the inventor of the Cam-Remote system. He is a general partner in the Matthews Studio Electronics company.

Nettmann has been the recipient of Academy awards for his invention of the Astrovision periscopic camera for Lear jets and also for the "pitching lens" optical system for mini-

ature cinematography. In 1981 he received an award from NASA for his design work on the first space shuttle mission.

"The Role of the Cinematographer in Motion Pictures and Television" will be offered at UCLA in cooperation with the American Society of Cinematographers and will be taught by John Bragin, president, John Bragin and Associates. Among guest cinematographers will be Stanley Cortez, president, ASC (*The Magnificent Ambersons*, *The Three Faces of Eve*), Steve Burum, ASC (*The Outsiders*, *Rumblefish*), Harry Wolf, second vice president, ASC (*Baretta*, *Columbo*), Richard Edlund, ASC (*Star Wars*, *Raiders of the Lost Ark*), Owen Roizman, ASC (*The French Connection*, *Network*, *Tootsie*), Conrad Hall, ASC (*Butch Cassidy and the Sundance Kid*, *The Day of the Locust*), Gary Demos (*2100*) and Joan Churchill (*Soldier Girl*). This six-session class, consisting of lectures, screenings and discussions with guest speakers, will meet on Wednesday evenings from 7 to 10 p.m. beginning January 22 through February 26 at UCLA. The fee will be \$155.

A presentation of "Visual Images by Computer" will open a season of dinner meetings at the A.S.C. Clubhouse on October 28. Digital Productions Company will be represented by John Whitney, Jr., Michael Whitney and Gary Demos. This program will be a continuation of the 1985 State-of-the-Art series on innovations in the industry.

In early October George Turner, magazine editor, attended the 60th anniversary celebration of the founding of Agfa-Gevaert Film company in Antwerp, Belgium. He plans a report later on a new color negative Agfa has designed for motion picture use.



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